A Consolidation of
FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

MARCH 9, 1927

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"Stays on the job
'till the job is done!"
Eureka Fire Hose Manufacturing Company
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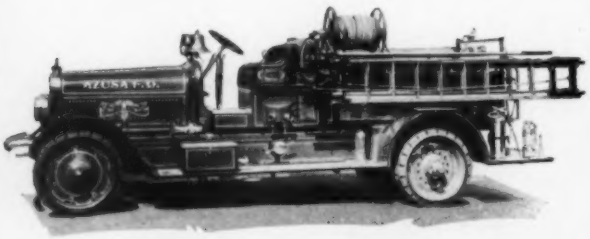
THE TIRES WITH NINE LIVES



When spring rains make good roads treacherous and bad roads almost impassable to trucks or ordinary solid tires, Kelly Kats do their work steadily and safely in spite of bad conditions.

Flames and the Seagrave STANDARD PUMPER do not get along together. Where there is a Seagrave STANDARD PUMPER a fire must die in defeat. It is, indeed, fire's worst enemy. Efficient, reliable, it meets every need of large and small fire-fighting organizations.

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The Journal of the Fire Protection Profession Since 1877

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¶ If every salesman would just take the trouble to let his home office know that FIRE ENGINEERING is more carefully read by fire officials than any other magazine, it would do much toward securing an adequate advertising schedule if one is not already in force,—thereby helping our readers, ourselves, your company and yourself!

What could be fairer?

The Publishers

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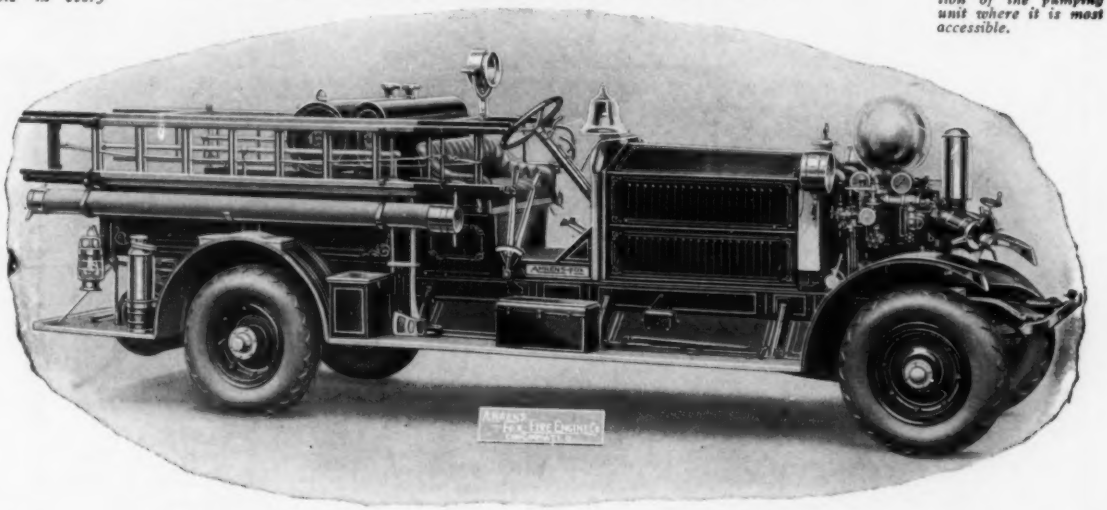
Entered as second class matter at the Post Office, Albany, N. Y., January 29, 1926, under the Act of March 3, 1879.

New Ahrens-Fox pumper — Complete, up-to-date, thoroughly dependable in every detail.

"Nothing is too good for fire service, and nothing but the best will do."—Ahrens-Fox.

Note the balanced and sturdy construction and the practical position of the pumping unit where it is most accessible.



Modern Ahrens-Fox Apparatus

with twin pumping plant and super-powered fire apparatus motor is the standard of quality

Fire officials throughout the country who are alive to their public responsibilities invariably place quality—efficiency and dependability—above price and every other consideration in the selection of apparatus.

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When the engines respond and the hydrants don't, there's trouble ahead for the fire fighter.

Full pressure that instantly comes at the turn of the wrench is the kind of co-operation the fire fighter needs—and should have. The kind of co-operation a Darling Fire Hydrant *gives* him! Its simple, sturdy mechanism never binds nor jams.

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The "THOROUGHBRED" saves seconds -- where every second counts!

WHEN clanging apparatus swings into the scene of the fire—each fire-fighter leaping to his particular task—*time is precious.* Lost seconds may mean failure.

The *Childs* "Thoroughbred" was designed to save those vital seconds. All its complete equipment is placed where you can instantly put your hand on it. No climbing over the apparatus to reach what is wanted! Pump, ladder, suction hose and all accessories are mounted low.

And for driving power—pumping power—speed on the road—endurance under severe punishment—the "Thoroughbred" fully measures up to the demand put upon modern heavy duty fire apparatus. Our literature tells the whole story.

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A Complete Engineering Service

Against Fire

Some Straight Facts

For Cities, Towns and Large Industrial Plants

SIRACODE SIGNAL CORPORATION is the *only* "Scientific" manufacturer of Sirens in America. These are marketed under the trade name "SIRACODE." All other makes are identical to each other, embodying age-old principles of construction long ago discarded by this company. In view of these facts the following exclusive advantages can be enjoyed only in SIRACODE:

1. **Instantaneous Coding types operating in conjunction with any standard box system, or thru our recently perfected WARD System. We do not reverse the current or apply brakes to our instruments in an endeavor to produce code signals. Our experiments have shown both methods inefficient and unsatisfactory.**

2. **Advanced construction (Parabolic principle) creating greater air volume, hence producing more powerful and penetrating tones, with far greater range than possible with the old types.**

3. **Complete control of sound waves which can be *projected in any desired direction* or evenly spread over a given area.**

4. **On the smaller apparatus types, specially constructed motors so powerful yet consuming so little amperage that drain on batteries is eliminated, making it unnecessary and inadvisable to install any types which require the disfiguring, rebuilding or substitution of parts in your cars or apparatus.**

5. **In large congested cities it is impossible to rely solely on any siren *attached to the apparatus* to clear traffic. This must be done *before* the apparatus arrives. We have recently perfected an instrument especially for this purpose which can readily be attached to street boxes, traffic signals or poles. These instruments function automatically when box is pulled, or thru central station, completely clearing the path the apparatus is to take.**

6. **When you install anything but SIRACODE you are not getting the newest, latest or best.**

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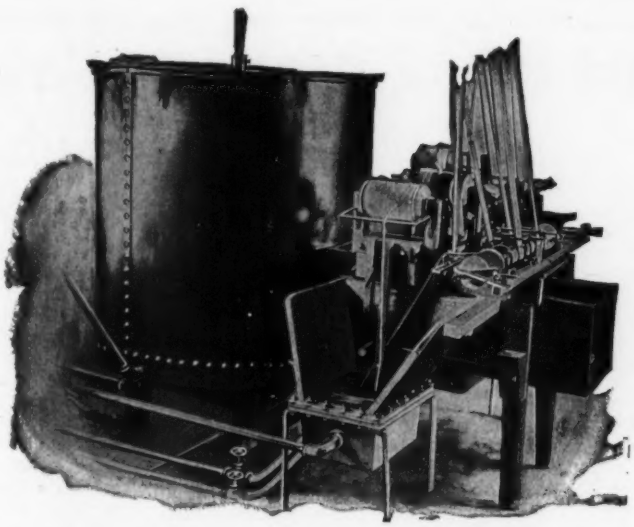
Sirens For Every Purpose



One of the machines used in the manufacture of the famous

FABRIC

Wax and Para Gum Treated Cotton Rubber Lined Fire Hose

OUR first process—that of treating cotton yarn with melted wax and Para gum. The "wax" is ozocerite and the "gum" is smoked latex from the rubber tree. This compound is kept in hot solution in the steam heated cylindrical tank of the TREATMENT MACHINES. The hose cord passes through this hot "treatment" and becoming thoroughly impregnated renders the fire hose fabric from which it is woven, MILDEW-PROOF, ROT-PROOF, PLIABLE, STRONG and DURABLE.

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Phone Fails, $100,000 Fire at Springfield Results

SPRINGFIELD, Mass., Jan. 20.—(INS)—A girl telephone operator in a downtown exchange lost an opportunity to be a heroine and her failure to answer resulted in a $100,000 fire in the heart of the automobile district early today.

M. A. Friend, night watchman in the plant of the John R. Lyman Waste company on Liberty street, discovered a bale of rags burning. Finding he was unable to check the flames, Friend ran to the telephone, hoping to give an emergency call to fire headquarters.

Friend tried frantically to get an answer but repeated working up and down of the telephone hook brought only silence. Then Friend ran outside and summoned help.

By this time, however, the fire was burning fiercely. Flames swept the three story brick building, destroying the waste company's plant and plants of the Lyman-Beers company, plating and polishing supplies, United Oriental Rug company and, Witherbee Ignition company.

Firemen had a two hour battle to keep the fire from spreading to nearby buildings, a majority of them occupied by automobile firms.

The telephone line over which Friend had tried to call was found to be in working order

(A reproduction of an actual news item)

The Emergency Factor Demands an Emergency System

Elements of delay and confusion attached to everyday methods of communication render such methods unsafe for emergency service such as fire alarm demands.

The modern fire alarm system is the product of more than one half century of fire alarm engineering. It was designed and developed to fill a gap which existed in everyday methods of communication. The fire alarm box is operated only in an emergency with the safety of life and property dependent upon its proper operation, and the make-up of the system is such as to handle these calls in the quickest and most accurate way that human ingenuity has yet devised.

Everyday methods of communication are far slower and less reliable at their best than the fire alarm system, and although they furnish valuable auxiliaries, there is little wonder that they very frequently fail where they are relied upon solely, for the transmission of fire alarms.

The Gamewell Company

Newton Upper Falls, Mass.

The First Sand Cast Aluminum Box

Sand cast aluminum boxes were first manufactured by this Company some twenty years ago for the City of Milwaukee. This material was discarded shortly afterward as unsatisfactory for fire alarm boxes. Eight years later the Star Electric Company of Binghamton, N. Y., used this material, but soon discarded it for the same reason. Samples of these boxes, manufactured fifteen to twenty years ago, are on exhibition in our museum.

FIRE ENGINEERING

(A Consolidation of Fire and Water Engineering and The Fire Engineer)

The Journal of the Fire Protection Profession

VOLUME LXXX MARCH 9, 1927 NUMBER 5

Is It Safe to Discharge Gasoline Into Sewers?

Most Authorities Say "No"—Here's One Writer, However, Who Argues That It Is Not Hazardous to Do So

By CAPTAIN M. W. McINTOSH, Engine Co. No. 1, Seattle, Wash.

IT is generally looked upon as extremely hazardous to allow gasoline to flow into the sewers of a city. So much so, that several cities have passed ordinances requiring garages to filter waste water before discharging it into the sewer to remove any danger of such waste containing gasoline which might cause an explosion. The author of the following article presents the subject from an entirely different viewpoint and argues that there is no danger of explosion connected with allowing gasoline to enter the sewer:

To be able to intelligently direct or assist in the extinguishment of any fire it is necessary that the principles of construction of the property involved be known.

The modern tank wagons used in the delivery of hydro carbon oils in Seattle and vicinity are constructed of 3/16 to 1/4 inch boiler plate steel, pressed into shape and all joints and seams electrically welded. These tanks are from 500 to 1,500 gallons capacity and a large number of them are divided by double wall partitions into two or more compartments, each tank or compartment having an outlet pipe leading from the bottom to the rear of tank and terminating in a hand controlled valve of various design. On a majority of these tanks this is the only point of control, the newer type only being equipped with emergency valves usually located between chassis frame so as to be protected from accidents.

Danger of Accident to Trucks

At the top of each compartment is a combined vent and relief valve of special design and locked to position. On the newer type tank wagons heavy steel bumpers have been installed to protect exposed control valves, but many do not have any protection and the slightest accident may cause control valves to be broken off and a deluge of gasoline or other oil pour out upon the street. Drivers of tank wagons are selected with care and work under very strict orders with regard to the care and operation while in charge of them. They must exercise every precaution to avoid an accident or prevent a fire, but, with the ever increasing amount of traffic and careless drivers no vehicle is safe from an occasional misfortune.

Fire Cannot Enter Tanks Against Pressure

Tank wagons carrying gasoline or other light hydrocarbon oils over public thoroughfares must be considered as a serious fire hazard, although they have very little or no liability to explode under ordinary conditions. Gasoline vapors being heavier than air, it is necessary to build up a slight pressure in tanks before vapors can be discharged through relief valve and fire cannot enter against pressure. For this reason a fire which might involve or expose tanks would not be apt to cause an explosion and could be safely worked around with extinguishers for some time.

Must Be Cooled to Avoid Explosion

Gasoline, besides vaporizing rapidly, has a very large expansion in volume when heated. A 1,000 gallon tank will expand approximately .6 of a gallon for each degree of rise in temperature. With such a rapid expansion in volume tanks would soon overflow or burst if not kept cool and for this purpose large quantities of water should

The Big Tank Filled with Gasoline on This Truck Sprung a Leak on a Chicago Street, and the Police Forced the Driver to Discharge the Entire Load Into the Sewer.

be used taking every precaution not to spread the existing fire.

Quick and Concerted Action Needed in Case of Fire

Should a tank wagon become involved in an accident on any of the steep grades or in the business district of the city and a large quantity of gasoline be spilled, running along the pavement, in under parked cars and into the sewer catch basin, a very dangerous situation would exist, involving both a life and property hazard. Assuming such an accident has happened and an alarm of fire has been turned in, but oils have not taken fire upon arrival of apparatus, a great responsibility would rest upon the first chief officer and company officer to arrive at such a location.

What should be done to prevent this large quantity of oil and vapors from becoming ignited with the resultant flash fire or explosion, which would be of more or less violence and develop a high degree of heat? It would necessitate the quick and concerted action of all members present and a previous study of such a situation would be of inestimable value to the success of the operation. The quick spreading of sawdust or dirt to divert oils to gutter catch basin, the blocking of all streets leading to that particular location, the shutting off of all motors, the hurried exit of all persons in the block, backing them into stores and out of contact with the inflammable vapors, the calling of police reserves or additional man power, the laying of lines on sidewalks to cover buildings if necessary and lastly the sluicing of pavement to wash all remaining oil into sewer catch basin.

Must Check All Flow From Tank at Once

If gasoline or other oil is still flowing from tank upon arrival, every effort should be made to check this at once, using wooden plugs, wedges or even rags or gloves if other materials are not available. Wagons of some of the oil companies carry a supply of these plugs and wedges. Any opening, even on an empty tank, should be well plugged before any attempt is made to move such wagon and then it should be towed and no attempt made to start motor. Empty tanks are very hazardous from an explosion standpoint. With tank wagon moved and streets well flushed the greatest danger is over, but special care should be given to catch basin and sewer. This will be explained later.

What to Do When Tank Is On Fire

Again assuming the same situation. A tank wagon has had an accident and large quantities of gasoline are pouring upon the street and this time on fire. This will of course involve the tank wagon itself and probably a number of other cars which may be parked nearby. The heat from a fire of this type would be of great intensity and would quickly involve any combustible material exposed. Store fronts, awnings and show windows would be among the first to suffer and fire would be liable to enter open windows in upper stories. A fire of this kind would probably spread along the gutter for some distance, say 100 feet or more, before arrival of first apparatus. There are several autos involved and the fire threatens others in the line of flow. There is practically no life hazard for the vapors are burning and no flash or explosion need be anticipated. What should be done.

First, size up the extent of fire and its possibilities. Send in additional alarms or special calls for any apparaus needed. Quick action must be taken to prevent fire from spreading. Lines must be laid and operated, so as to prevent fire from entering exposed buildings, taking care not to break plate glass windows if possible. Other lines must cover tank wagon and burning autos, washing the burning oil towards gutter catch basins. Autos not involved and in danger must be moved to a place of safety. Sawdust and dirt must be banked at street intersection to keep burning oil from spreading past sewer catch basin or crossing street.

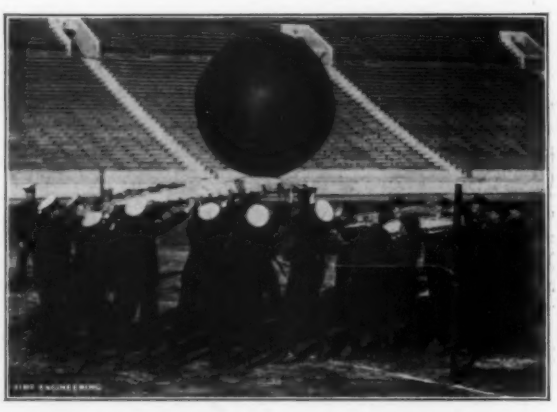
How to Stop Leaking Oil

The flow of oil must be checked if possible. This flow if from a broken pipe could possibly be stopped by using rags on the end of a long pike pole or perhaps a man with the aid of streams could approach close enough to place a plug or wedge in position. Once the supply of oil is shut off it should not be hard to wash the remaining oil from street and extinguish burning autos and store fronts. Oils remaining on fire in sewer catch basin would be easy to extinguish with small hand Foamite extinguishers or could be allowed to burn out with no particular damage or danger.

Claims No Danger from Oil in Catch Basins

A few words on the construction of street catch basins and settling tanks will show why this is not only a safe place to wash dangerous liquids and oils from the public streets, but under many circumstances is the only place available. Should accident happen at or near the street intersection, catch basins would be involved before the arrival of apparatus and any use of necessary extinguishing agents would wash more of the oil to the same place. The curb fall or street catch basin as used in most cities, leads to a settling tank only a few feet away and from these settling tanks an inverted trap connection leads to main sewer. The water level in these settling tanks is always from ten to fifteen inches higher than outlet pipe, due to the inverted trap and from this it may be readily seen that quite a large quantity of oil would collect there before any would enter main sewer and that positively no flame could find its way into main sewer from this source. A thorough flushing of the catch basin, settling tank and main sewer would be necessary before leaving after such an accident and a generous use of open hose butts would soon accomplish this.

This covers only the essential points of such a fire and there are many complications that may arise from the particular circumstances found in each case. There are many other ways in which such a fire could be handled where favorable conditions are found, such as dirt streets, etc., but in a well built up business or commercial district it is necessary for the safety of life and property to quickly remove volatile liquids from the street and the catch basin of storm sewer offers the best and safest means to that end.



Los Angeles Firemen Practice at Push Ball Game

An adaptation of the familiar game of push ball and volley ball has been developed by the Los Angeles, Cal., firemen for the annual games with the police department. The game is played with life nets to keep the ball off the ground and in motion. There is a net similar to the tennis net but mounted differently to divide the two courts. Regardless of how the game is played, the firemen on the far side of the net appear to be having an enjoyable time in keeping their police apponents busy.

Large Fire in Woburn, Mass.—Damage estimated at $250,000 was caused by a fire which broke out recently in a frame building in Woburn, Mass., occupied by a patent leather concern. Aid was sent from Lexington, Stoneham, Wakefield, Medford, Winchester, Reading, Melrose and Arlington. The fire communicated to two other nearby buildings and many small blazes occurred over a wide territory.

Hotel Fire Might Have Been Held

Failure to Employ Fire-Door Openings Probably Responsible for Complete Destruction of Building

THE fire described in the last issue of this journal occurred in a four-story brick and joist hotel building. This building, when originally constructed was divided into two separate buildings by a twelve-inch division wall of brick.

One section (A) shown in the sketch herewith was formerly a department store and the other section (B) a hotel.

Subsequently section A was taken over as part of the hotel building and the division wall between sections A and B opened up and fire doors were placed in the hall on each floor. Location of stairways and elevators are shown in the sketch. Both were open from the ground floor to the top floor, the elevator shaft being enclosed only with open grill work.

The sketch herewith shows the floor plan of the second and upper floors. On the ground floor of section A were a restaurant, kitchen and lounge room, the kitchen being situated directly behind the elevator and stair shafts.

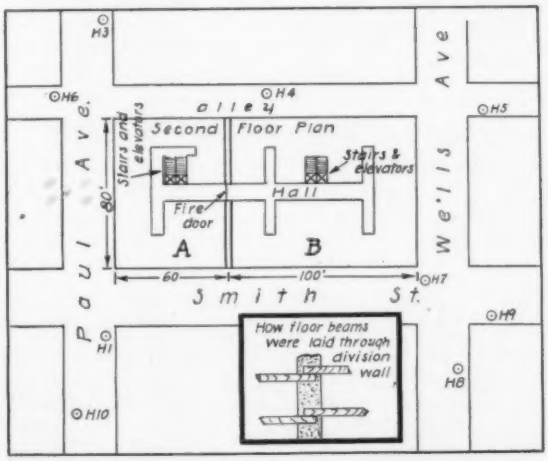
The restaurant was located along Paul Avenue and the lounge room on the Smith Street side next to the fire wall.

Dimensions of the building are shown on the sketch.

The Fire

The fire started around 5 A. M. in the kitchen, through a cauldron of fat overflowing and taking fire.

At the time this occurred there were a great number of grocery boxes, filled and partly filled, in the kitchen. Upon the grease taking fire, fire spread to the metal canopy over the



range which was coated with grease and the employees became panic stricken and rushed out leaving the door leading to the dining room and stair hallway open.

The employees in the kitchen (two in number at the time the fire occurred) hurried to the office and notified the night clerk of the fire. The night clerk made an investigation and found that the flames were sweeping out into the stair hallway and also into the dining room.

The night clerk aided by porters and the kitchen employees attempted to put the fire out with hand extinguishers which were available. No apparent progress was made, but on the contrary the fire gained greater proportions in the kitchen and it was eventually decided to call the department.

During the time the employees were endeavoring to put the fire out, it went up the stairwell igniting the carpets and woodwork around the stairs. This was not discovered until subsequently and at which time the hotel fire alarm was sounded.

The porters had foresight enough to get the occupants of section A into B and to close the fire doors after them. This resulted in the saving of all lives—not one being lost. It also did a great deal toward checking the fire until the department arrived.

In response to the telephone call a first alarm assignment was sent.

Response of Apparatus

For an outline of the make-up of the department the reader is referred to the February 23rd issue of this journal.

Response to first alarm consists of Engine Companies Nos. 1, 2 and 3, and Truck Co. No. 1.

Second alarm brings out in addition to the above, Engine Companies Nos. 4 and 5, and Truck Co. No. 2.

A third alarm brings out Engine Companies Nos. 7, 8, and 9, and Truck Co. No. 3; while a general alarm brings in addition, Engine Cos. Nos. 10, 11, and 12, and Truck Co. No. 4.

Suggested Method of Handling the Fire

No criticism can be offered regarding the assignment of the first alarm apparatus. It was as follows:

Engine Co. No. 1 was placed at hydrant No. 1 and a single line stretched on the ground floor to the kitchen. This line operated on the fire in the kitchen where it was coming into the stair hallway and dining room.

Engine Co. No. 2 was placed at hydrant No. 6 and a single line stretched to the stairway to assist the line already in operation at that point.

Engine Co. No. 3 was placed at hydrant No. 4 and a single line stretched in and up stairway while the line from Engine No. 2 covered this latter line.

Then a second line was stretched from Engine Co. No. 1 up ladder to second floor.

Engine Co. No. 2 also stretched in a second line to the second floor. Both of these lines met with considerable difficulty in getting to the fire for the rooms between the hall on the second floor and the street front of the building were charged with smoke and heat.

The lines had to pass through this before they could get to a point where they could direct the streams on the fire.

These lines apparently were able to get the fire pretty well in hand on the second floor, but in the meantime the fire had gone to the upper floors and was making fast work in spreading throughout the second floor of section A.

Members of the truck company were sent up to the various floors of section B to make sure that the fire doors were closed and also to see that fire was not spreading through these different floors.

Materials in contact with the division wall were moved back on each floor so that it was felt that there would be little likelihood of fire passing the wall.

Call Help Promptly

It would have been better for the commanding officer, upon noting the extent of the fire when he responded with the first alarm, to immediately transmit a second and a third alarm, or second, third and general alarms depending upon the stage of the fire.

As it was, only a second alarm was transmitted which ultimately meant a delay resulting in unnecessary spread of the blaze.

Assignment of apparatus on second alarm should have been as follows: Engine Co. No. 4 at hydrant No. 7 and a single line stretched by way of stairway to third floor. This line to operate through fire door onto fire.

Here is a mistake made by the department in operating at the fire—not utilizing these doorways. It may have been necessary to take punishment, but proper venting on the floor and the prompt use of the lines through these doorways would have checked the fire at the point where it was gaining greatest headway—in the hallway surrounding the stairway and elevator shafts.

Members of truck company to assist this first line in providing ventilation by opening doors to rooms and windows to street.

Engine Co. No. 5 at hydrant No. 5, and a single line stretched to the fourth floor of section B of the building and to operate through fire door into fire in the hallway on this floor.

Engine 6 at hydrant No. 9 and a single line stretched to the third floor of section A by way of ladders on Smith Street.

If roof venting has not already been done by Truck Co. No. 1, responding to the first alarm, this should be taken care of immediately upon the arrival of Truck 2 on the second alarm. Send men to the roof to open up over stairwall and elevator shafts. This is most essential to keep the fire from spreading to the rooms around the hallways on the third and fourth floors.

Transmission of Additional Alarm

As noted above, the officer transmitting the second alarm should not have stopped there but should have transmitted also

a second and third alarm. If the third alarm had not been sent in on the arrival of the ranking officer—responding on the second alarm—a third alarm should be transmitted at once.

Assignment of apparatus on third alarm is suggested as follows:

Engine 7 at hydrant No. 3, stretching a single line by way of ladder to the fourth floor of section A on the Paul Avenue side. This line to operate into hallway within building if possible. It will be necessary to first kill the fire in the room but this will not take long if ventilation is provided.

This line from Engine No. 7 should work toward the rear of the building rather than toward the front for the line from Engine Co. No. 5 is already covering the fourth floor hallway in the center of the building.

Engine Co. No. 8 to be stationed at hydrant 10 and a single line stretched by way of ladder to fourth floor of section A on the Smith Street side.

The assignment of Engine 9 will depend upon the tendency of the fire, it being remembered that a continual patrol must be employed to note possible extensions of the blaze.

Utilizing the fire door openings and providing proper ventilation, will do most toward keeping the fire under control. The streams directed in the hallway catch the fire at a point where it is burning with greatest intensity. If the body of the fire is killed at this point the rest is not a difficult proposition.

Thorough overhauling after this fire is extinguished would be most essential for in view of the type of construction employed in running the beams adjacent in the fire wall, there is always a possibility of fire getting through unnoticed and rekindling either in section A or extending to section B.

It is believed the above assignment of apparatus would have made possible the control of the fire with three alarms and with a comparatively moderate loss.

Albany Again Reduces Fire Loss

Twice the recipient of national honors in the fire waste contest conducted by United States Chamber of Commerce among the various cities in the country, Albany, Ga., again has accomplished a noteworthy thing by reducing the fire loss that was deemed sufficiently low to win the grand prize in the contest last year.

Chief D. W. Brosnan

During 1926 there were 110 fires with a total fire loss of $7,903. This makes a per capita loss of slighty more than forty-four cents. The year previous the total fire loss was $27,106.

Albany enjoys lower insurance rates than are granted to any other city in the South. The lion's share of the credit for this outstanding achievement is due to Chief D. W. Brosnan, head of the fire department.

A study of the fire loss for the last five years is interesting:

Year	Number of Fires	Loss	Year	Number of Fires	Loss
1922.....	137	$7,588	1925.....	127	27,106
1923.....	160	52,722	1926.....	110	7,903
1924.....	159	7,838			

In commenting on the work, Chief Brosnan said, "We have intensified our fire prevention work this year. The press, the schools and all civic organizations are co-operating with us most fully in this work. We have attempted more educational work than ever before and the response to our efforts has given us encouragement. The department is demonstrating to the country that fire prevention ideas when practically applied will prevent fires and control the fire loss."

Athol, Mass., May Purchase Pumper—Athol, Mass., is considering the purchase of a pumper.

Hornell, N. Y., Chief Dead

Chief Joseph M. Hederman, for twenty-three years head of the fire department at Hornell, N. Y., and former president of the New York Association of Fire Chiefs, died at his home recently at the age of fifty years, following an illness of several months.

The Late Chief Joseph M. Hederman
Taken Shortly After His Appointment as Chief

Mr. Hederman was a member of the city's old volunteer organization known as the "Dynamiters," and he was foreman of that group. Five years later he was elected assistant chief of the volunteer forces. Two years later he was appointed its head by the Common Council and in 1901 he was reappointed to that position.

When the fire department became a paid unit, Mr. Hederman still retained his position as chief.

He was prominent in the affairs of the state chiefs' organization. Chief Hederman was affiliated with the B. P. O. Elks in Hornell and was a member of the Knights of Columbus. He is survived by two sisters.

Program of South Dakota Fire Chiefs

The annual convention of the South Dakota State Fire Chiefs' Association, is to be held at Brookings, S. Dak., on May 3 and 4, and a large attendance of the heads of fire departments throughout the state is expected. Chief C. M. Johnson, of the Rapid City Fire Department, is secretary. The tentative program is as follows:

May 3

9 a. m.—Address of Welcome by Mayor of Brookings; Response, B. H. Gray, President, Canton.
9:30 a. m.—Fire Marshal Activities.—G. H. Helgerson, Commr. of Insurance.
10 a. m.—Short Course in Fire Prevention.—W. N. Van Camp.
11 a. m.—Electrical and Mechanical Installation.—R. L. Daniels, Minneapolis.
1 p. m.—Fire Prevention in Building Construction.—D. L. McCoy, Sioux Falls.
2 p. m.—Modern Methods of Fire Extinguishment, Control, Care and Maintenance of Fire Equipment.—A. I. Olding, Redfield.
Question Box.
5:30 p. m.—Adjourn until May 4, 9 a. m.
7:30 p. m.—Free Moving Pictures—"The Fire Brigade" shown for first season.

May 4

9 a. m.—Fire Hazards, Exposures and Statistics.—D. L. McCoy, Sioux Falls.
10 a. m.—Combating Smoke, Gas and Other Hazards With Safety First Methods Applied.—Richard R. Vernor, Chicago.
11 a. m.—Safeguarding Business Districts with Special Regard to Oil Burning Equipment.—R. L. Daniels, General Inspection Bureau, Minneapolis.
1 p. m.—Water Works and Pipe Line.—Clarence Goldsmith, Chicago.
2 p. m.—Question Box.
5 p. m.—Business Meeting and Election of Officers.
6 p. m.—Sightseeing trip over Brookings and to State College by citizens of Brookings.

N. Y. City Uses New Fire Alarm System—On February 4, the old fire alarm telephone system used in New York city was abandoned and the new fire alarm telephone system in the Borough of Manhattan was placed in service. In the new system it only requires the lifting of the receiver to obtain the central office operator.

Some Pointers in Testing Motor Fire Pumpers

Three General Types of Pumps—Their Characteristics—Test Conducted Under Supervision of Underwriters' Engineers—Pumpers Justify Purchase

By R. B. CRISWELL, Engineer, Ohio Inspection Bureau.

THE "acceptance test" of the newly-purchased pumper occupies so important a part in the adoption of the apparatus by the fire department, that the following article will be found of value to chiefs about to receive new machines for their departments:

A brief discussion of the various types of fire apparatus, and of the methods of testing same will be of interest to chiefs of fire departments.

Three Types of Pumps in Use

There are three general types of pumps used on motor fire apparatus—rotary gear, centrifugal and piston. The rotary gear pump may be likened to a pair of ordinary spur gears having only a few teeth. The average size of these teeth is probably about 6" in diameter and the working face 3" or 4". The centrifugal pump bears a slight resemblance to an electric fan. The piston type pump may be likened to the pistons and cylinders of an automobile.

All these pumps are driven by the truck motor, being thrown into action by independent operating lever. In general the rotary pump runs at about one-half the engine speed, the centrifugal pump at about two times engine speed and the piston pumps at about one-fourth engine speed.

The rotary pump is the type in most general use. Nearly all small pumps are of this type or of some modification of the same. It is also adopted by one of the large manufacturers of fire apparatus. Another uses the centrifugal, while a third prominent maker has adopted the piston type of pump.

Characteristics of the Types

Each manufacturer claims certain outstanding features for his product. The general characteristics, however, are as follows: The rotary pump grinds the water through just as any pair of moving gears would grind through other substances. The centrifugal pump due to its high speed sucks the water in, and then gives it a "kick" or "push." In the multi-stage pumps there may be several successive "boosts" within the same pump casing. The piston pump acts on the same principle as our old fashioned hand pumps.

Take Suction from Open Water or Hydrants

All these pumps readily take suction from either open water or from hydrants. Suction lifts of from 5′ to 15′ are common, but 25′ is about the maximum. Normal working pressures are usually less than 250 pounds, but pressures of 400 pounds per square inch have been mantained for a considerable period. When taking suction from hydrants, the centrifugal type of pump is theoretically the best, since it utilizes the existing water pressure and merely gives the water a boost as it goes by. The amount of water that can get by the pump parts of the rotary pump is limited by the engine and pump speeds. The water under hydrant pressure, in piston type pumps can flow directly through the pump valves, but of course its flow is accelerated when the pump is operating. In actual practice, however, we have found very little real difference in the various type of pumps when taking suction from either open water or hydrants.

How Tests Are Conducted

Practically all pumps come up to the makers guarantee nicely. It is part of the work of the Engineering Department of the Fire Underwriters to conduct acceptance tests of motor fire pumpers and to act as an umpire or referee to insure that the purchasing community receives apparatus which has capacity equal to the specifications. These specifications are those furnished by the National Board of Fire Underwriters and consist of a full three hour test divided into several parts. The first test is always for full pump capacity according to the specifications. This test must continue for full two hours, without interruption, and with a net pump pressure of 120 pounds per sq. in. By net pump pressure we mean the "lift" plus the "push." (Official tests are always conducted from open water). On the larger type pumps we then test for one-half hour at one-half capacity but at 200 pounds net pressure. Then follows another half hour test at one-third capacity but 250 pounds, net pump pressure. On the smaller jobs the last two tests are combined to a one hour's run at half capacity and 200 pounds net pressure.

The "Acceptance Test"

These three hour tests are "acceptance" tests made at time of delivery of apparatus. To determine the ability of a general type of apparatus a twelve hour test is conducted using the proportioned ratio of time. A twelve hour test is the same as a three hour test, only "more so." Imagine if you can, the fun of standing all day long beside an automobile running at high speed (but going nowhere), with no muffler on the job, and with the fun of dousing your hands in ice cold water ever few minutes when making readings.

Other Tests Specified by Town Officials

In addition to the above "official" tests, such other tests as the town officials might designate, are supervised. These include pumping from hydrants, throwing water over the highest church steeple, road tests, etc. In general the official tests are not as spectacular as the natives wish. After a half hour or so elapses and the

"The load of an automobile motor when driving a fire pump is essentially different than ordinary commercial use. Here it has a long, steady, hard pull at near capacity and with no let ups. Motor pumpers, even those of small size, generally amply justify their purchase."

contraption doesn't blow up but goes steadily along at its job, they lose interest and the initial crowd dwindles considerably. At the end of a test there are not usually enough left to roll up the hose.

Equipment Necessary for Tests

The equipment necessary for conducting a test is not very elaborate. Several good gages are needed, these being carefully checked against dead weights before and after the test. One gage indicates pump pressure, another the vacuum, or suction lift. A third gage is used in connection with a pitot tube for insertion into the discharge stream where it emerges from the nozzle. By noting the nozzle pressure, and knowing the exact size of the nozzle, from the table in our "red book" we can determine the delivery in gallons per minute. The revolutions per minute of the pump or of the motor are also taken, and a general weather eye kept on the performance of the apparatus.

Heavy Load on Motor to Drive Fire Pump

The load of an automobile motor when driving a fire pump is essentially different than ordinary commercial use. Here it has a long steady, hard pull at near capacity, and with no let ups. It takes a pretty husky motor to stand the racket. We have run official tests on various sizes of pumps ranging from 250 G. P. M. to over 1,000 G. P. M.

In a rough way the inspector can size up assembled motor apparatus carrying pumpers as follows:

Fords, about 160 G. P. M. at 120 pounds or 200 G. P. M. at 100 pounds (on account of gear arrangement, and small sizes, tests are not run on these).

Dodge, or Graham Bros., Trucks 250 to 300 G. P. M.

Reo Trucks, 300 to 325 G. P. M.

Chassis carrying the standard "6B Continental" motor range from 350 to 500 G. P. M. A Packard twin six motor delivers about 750 G. P. M. In the big standard jobs it takes about 75 brake horse power for a 500 G. P. M. pumper and a 100 brake horse power motor for a 750 pumper.

In the above listed classification, the capacities noted, were when pumping from open water. From hydrants, the capacities would be somewhat greater.

Pumpers Amply Justify Their Purchase

In conclusion we can say that motor pumpers, even those of small size, generally amply justify their purchase.

Massachusetts Fire Chiefs Meet

The February meeting of the Fire Chiefs' Club of Massachusetts was held in the Elks' Club, Boston, on February 16; Chief Patrick J. Hurley, of Holyoke, presided.

Announcement was made that the board of directors had approved of the proposed election to honorary membership in the club of Jay W. Stevens, State Fire Marshal of California; James J. Mulcahey, Chief of the Yonkers, N. Y. fire department; and Chief John M. Evans, of New Orleans, La..

Chief Hurley, president of the club, called for brief testimonials to the achievements of the men. Chief George L. Johnson, of Waltham, spoke for Stevens; Chief William F. Daley, of Brockton, for Mulcahey; and Chief James M. Casey, of Cambridge, for Evans. All three were unanimously elected honorary members of the club and Chief John J. Hannigan, of Norwood, was elected as an active member.

Chief Sewall M. Rich, of Somerville, made a report as chairman of the legislative committee. There was a discussion on the subject of oil heater regulations. A committee was appointed to co-operate with Col. Aldred L. Foote, Massachusetts Commissmissioner of Public Safety, in regard to matters relating to fire prevention regulations.

President Hurley appointed the following chiefs to this committee: Chief Daniel F. Sennott, Boston; Chief Selden R. Allen, Brookline; Chief Sewall M. Rich, Somerville; Chief William F. Daley, Brockton; and Chief George L. Johnson, Waltham.

HARRY BELKNAP

I. A. F. C. has Big Program for 1927

A calendar of activities for the International Association of Fire Chiefs has just been issued by its executive secretary, Jay W. Stevens, state fire marshal of California, Merchants' Exchange Building, San Francisco, Cal. This program includes not only the work to be done by the association and its members, but also provides for the cooperation of the leading national organizations, such as the Lions International, the Kiwanis, the Rotary Clubs, etc.

It is the most ambitious schedule of activities ever entered into by the association, and with the great increase in the membership which is now taking place, and the prospects for continued growth in still greater proportion, there seems no reason why this program when put into force will not produce a profound reduction in loss of life and property by fire.

The I. A. F. C. has already been brought prominently before the public through the means of the association's film, "The Fire Brigade," which has passed all expectations in its bookings in moving picture houses throughout the country. Much publicity has also been obtained through billboard advertising, which has been appearing during the past month on boards in 1,500 cities from coast to coast.

The program for the year 1927 is as follows:

Program of Activities for 1927

MARCH—International Lions Month. A request will be made for a meeting in every Lions Club in the United States and Canada during this month. Week of March 21st—Editorial Week.

APRIL—Kiwanis Month. Rotary Month. Co-operation with "Clean-Up, Paint-Up" campaign (3rd week in April). Spring clean up.

MAY—Home Inspection Month. Have an inspection of every home in America by a representative of the Fire Department. Co-operation of the Association of Credit Men during this month. Inspection of all schools; special fire drills.

JUNE—Fire Protection Month. Survey to be made of every town and city to show up lack of proper protection, need for equipment, etc. Also campaign for removal of fire traps.

JULY—Arson Month. Publicity on fires and need for closer co-operation with public and an appeal to the International Police Chiefs for their co-operation. Also enlist the aid of the Peace officers in the country.

AUGUST—Convention Month.

SEPTEMBER—Talks in theatres and inspection of places of public assemblies.

OCTOBER—Industrial Fire Month. An inspection of industrial plants, etc. Fire Prevention Week. Co-operation on Fire Prevention by having parades, demonstrations, lectures, etc. Railroad Inspection Week.

NOVEMBER—Fraternal Month. Fire prevention meetings at all Fraternal organizations—the Masons, Elks, Eagles, Knights of Columbus, Woodmen of the World, Y. M. C. A., Y. W. C. A., etc.

DECEMBER—Church Month. Fire Prevention meetings in all churches during the month. Special programs to interest co-operation of Camp Fire Girls and other similar organizations.

Power Wanted to Regulate Cleaners

When the California State Fire Chiefs' Association meets in Sacramento in March a bill to give the state fire marshal additional power in regulating the maintenance and operation of cleaning and dyeing plants will be considered. A special committee has been appointed to study a bill which has been suggested. This committee will report at the Sacramento meeting and if the bill meets with the approval of the Association it will be presented to the Legislature which is now in session.

Under the provisions of the proposed bill all cleaning and dyeing establishments will be compelled to apply for a license to operate in the state. The license fee has been set in the outlined measure at $100. Money thus obtained would be credited to the State Fire Marshal's department to be used in enforcing the provisions of the law. The Fire Marshal would have power to supervise the construction of the plants, to license or close down any establishment which may not be constructed as nearly fire proof as possible.

GUY C. MACDONALD

Explosion of Still Kills One—An explosion of a still in a house in Nattick, Mass., resulted in the death of one and a $35,000 fire damage.

Modern Fire Alarm Signalling

Bell Strikers and Whistle Blowing Machines—Description and Care

By E. W. KEIRSTEAD, E. E.

THIS is the twenty-first of a series of articles on the care, installation and repair of various phases of fire alarm work, The author has had practical experience in this field, and he will answer questions on this subject that are submitted to him by the readers, free of charge. The only condition is that a stamped envelope must be enclosed for reply.

Description

A bell striker or whistle blowing machine is an electro-mechanical means of remotely operating a whistle or bell. There are several types and sizes of these machines and the method of operation is the same in all. The size of the bell striker is dependent upon the size of the bell itself. They are built in four different sizes, and are capable of operating strikers on all sizes of bells.

Fig. 57. Whistle Blowing Machine

The whistle blowing machine is made in two sizes, one designed to give somewhere around one hundred blows and another one that will give around two thousand blows. The latter model is used mostly for fog signalling and is not so good for fire alarm use as the former.

The whistle machine and bell striker is for the greater part a mechanical device, carrying on its operation when once tripped by the operating magnets. The driving power for the hammer or valve pull cable is obtained by the use of heavy weights. These machines are built rugged and can stand a lot of hard weather. They must however be housed in as the magnets and moving parts will be damaged and will fail to work when left in the open.

There are several different ways of suspending the single or double weight chain. With the latter it is necessary to have an extra long chain in order to give the same amount of blows as a single chain. On towers of small height a double chain can be used to advantage and it will give a steady driving power; the single chain will give the proper driving power but the action will be more or less jerky.

The operation of a bell striker is as follows: The controlling magnet is de-energized allowing the magnet armature to fall away and release the latch. This permits the dog to escape from the driving gear tooth and allows the weight to pull down on the gear. This mechanism turns over and operates the bell hammer. There is a spring attached to the bell hammer to bring it away as soon as the machine has latched up to prevent the hammer from staying in the region of the bell. This action gives the bell a clear sound and tends to stop any vibrating of the bell.

The operation of the whistle blowing machine is practically the same except that the action of the machine will open the whistle valve and the fan governor will determine the length of the blast. Both machines are equipped with fan governors and must be timed correctly in order to have the machine function with the rest of the system. These machines cannot operate at fast speed. The faster the timing the more apt the machine is to fail and wear out in a short time. The fastest time allowed to operate these machines is about 1½ seconds for bell strikers and about 2 seconds for whistle machines. They can be operated at faster speed but they will give bad signals.

The machine work on the machines is in keeping with the finish of other fire alarm apparatus and the bases and mechanical parts should be given good care in order to have the machine give good service.

When ordering a machine from the makers it will be necessary to give the gross weight of the bell as near as you can get it, as the size of the machine is directly dependent upon this weight. In addition it is well to give the height of the tower above the ground and the unobstructed distance from the point of installation of the machine to the ground. This will allow the engineers to figure out the required amount of chain necessary. The bell or whistle should not be installed near the ground. Ordinarily a whistle or bell performs best at an elevation of 50 to 75 feet above the ground or obstructions. In valleys the sound will travel best if installed at an elevation of 30 to 50 feet above all obstructions. The whistle or bell platform should be open on all sides to allow the sound to have clear passage in all directions. The platform for the whistle machine or bell striker should be housed in for protection and be equipped with a trap door or ladderway for easy entrance.

It will be necessary to keep on hand a good quality of oil and graphite to lubricate the machines, etc., they should be given an inspection at least twice a year and any worn parts should be replaced. All springs should be tested for good tension. The machines should not be oiled as an automobile, but in a manner similar to the other fire alarm equipment.

Installation

Before starting to install a bell striker or whistle machine it will be necessary to have a supply line available for operating the machine. On bell strikers or whistle machines it is good practice to have an individual circuit for each machine. They should be operated by the alarm circuits of the repeater if one is used, or all placed on different circuits on the board if no repeater is used. You can readily see the need for allowing an individual circuit for each machine, as with the machines on one or two different circuits when the circuit is out of service, part or all of the outside alarm signals are out of commission. When placed on alarm circuits, there should not be any boxes placed on the same circuit as these circuits are closed metalic circuits and the box is being pulled will only operate the machines on that circuit; consequently there will be no signal received at the engine house, or any place else, on any other circuit.

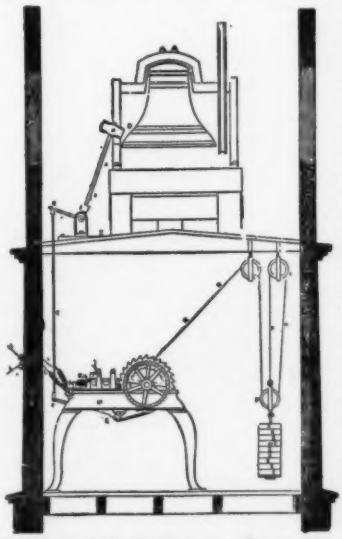


Fig 58. Bell Striker in Operating Position

It is necessary to keep a constant current on a bell or whistle line as the magnets are adjusted to operate at 60 milli-amperes and a slight drop in the current will suffice to trip the machine and allow it to sound its signal. The current impressed on the line should be as near 100 milli-amperes as possible. The lines should be tested for grounds very often and they should be removed immediately. Do not have more than 100 milli-amperes on the line as it will tend to make the machine operate sluggish, in addition to pulling up the armature quickly allowing the back stop screw to become unloosened and the machine to give trouble.

The tower selected for the machine, if a bell striker, should be of from 50 to 75 feet in height and ruggedly built to withstand the weather. The machine and bell should have a good solid foundation. The bell should be installed in the upper section of the tower, and the machines in the lower section. This should not be more than twelve feet lower than the bell platform itself. One corner of the machine platform should be for the machine itself.

Perhaps some information of raising the machine from the ground to the floor will be of use to some of the men in the field.

Generally there is some sort of girder work around the sides of the bell platform, or if none are placed there, there will be side bracing on the platform. Obtain a stout piece of angle iron and securely bolt it to the braces. This boom will have to extend out over the elevation of the tower itself about four feet, and it should be capable of supporting the weight of the machine when suspended in mid-air at the height of the platform. Too much care in figuring out the weight of the machine can not be given—when once in the air the machine will have to go up or drop and break. A stout block and tackle should be secured and the top block bolted or lashed to the girder about six inches from the end. The tackle should be long enough to run to the ground and should be free from stranded threads.

A strap should be placed around the machine in such a manner that no fragile parts of the machine will be involved and the tackle line hooked into this strap. A guide line should be fastened to one leg of the machine to guide it as it travels upward, and a shackle or strap placed around one of the legs on the opposite side of the machine. It is now possible to raise the machine to the plane of the platform floor where it is stopped off from the ground. The machine will be hanging out away from the platform about three feet. With the use of a small block and tackle the machine can be swung into the platform. Insert one end of a small tackle in the strap or shackle on the leg of the machine and fasten the other end to one corner of the platform. Allow the machine to be lifted from the ground a few feet and then as it is lowered off take up on the small tackle. The machine can then be brought into the platform. After the machine is floored on the platform the tackle can be lowered away and the rigging taken down to prevent accidents, while installing the machine.

The machine is next brought into place in the corner selected for it. A plum bob or some other plumbing device will have to be used to mark the closest and longest travel of the hammer rod and a slot cut in the bell tower roof for it to set into. After this slot is cut the position of the machine should be marked on the floor so that if it should be moved at any time it can be replaced to position again. The hammer rod should be set into place and run through the slot up to the bell platform. The bell hammer should be placed into position on the bell platform and anchored with toe lags or bolts.

The position will have to be measured before setting the machine or hammer so that the hammer will hit the bell on the rim and not up on the bell itself. If the hammer is not set into position correctly the bell will have a tinny sound when hit by the hammer. The bell hammer should be set so that it travels the proper distance back and forth to strike the bell or else it will not operate properly. When this has been done the machine should be bolted down securely, and a hole cut in the floor from which the chains are to suspend. This hole must be of sufficient size to allow the chains to enter and leave freely, or so they do not bind. If the hole is not of large enough diameter when the weights start swinging, they will bind and not allow the bell to operate.

The chain should be installed and allowed to run down to the ground. The hook and suspension rod should be attached and the weights placed upon them. Do not put all the weights on at the beginning but have what you think should operate the machine properly. Then wind up the machine and bring it to a stop. The magnets should be installed. When the machine is ready, plug out the magnets or if not connected release the pin and allow the bell to strike and note its sound. If tinny or not proper it should be adjusted so that it gives a good clear note. After the bell is operating properly run the weights down and note its operation when nearly run down. If faulty more weights should be added, until the note is such as desired.

A marker should be placed on the chain to give a warning when the machine is wound up full. The machine should be oiled and wiped off clean with a dry rag and it is ready for service. These directions may be used for whistle machines, except that they will operate a valve cord or cable instead of a hammer rod. These machines can be timed by changing the angle of the fan governor or weighting it down as the case may be. Do not cut the fans as it will tend to give a jerky signal.

For your information the resistance of the magnets of these machines are given to be of service on ordering new magnets, etc.

No. 5 Bell Striker	25 Ohms per pair.
No. 4 Bell Striker	30 Ohms per pair.
No. 3 Bell Striker	30 Ohms per pair.
No. 2 Bell Striker	30 Ohms per pair.
Whistle Machines	30 Ohms per pair.

Care and Service of Machines

A great many troubles blamed upon the machine itself are the result of carelessness of the men taking care of the machine. It often happens that a machine is operated at excessive speed and in a short time the various parts are worn out. In most of the cases the remedy will be apparent and the machine can be put back into service in a short time. Troubles of a chronic nature should be given serious consideration, as there is a cause for every trouble. It is sometimes the most simple things that stick us and nothing can be too small to let it go by.

Machine will not trip and release mechanism—Residual magnetism in magnets. Governor hitting against other part of the machine. Outside line crossed with signal line. Weights run down.

Machine trips off and sounds signal occasionally—Swinging open line. Heavy ground on the outside line. Magnets grounded against base of the machine.

Machine operates and gives jumbled signal—Machine out of time with the rest of the system. Alarm box out of time with machine. Worn dog on releasing mechanism. Machine run down. Magnets not operating. Governor hitting obstacle.

A regular schedule should be followed in inspecting these machines and your troubles will be cut down to a minimum. With whistle machines it is a good idea to see that the valve is kept hot all the time so that no condensation will take place at this point or at the whistle itself. A great trouble with whistles is that the first one or two blows are as a rule lost, this is due to it being necessary to expell the water from the chime or whistle.

In severe weather, such as winter time, a heat coil should be installed at the valve to keep it from freezing up at this point. The whistle should be tested a few times a day in the winter to make sure of operation. The larger air reservoir should be drained of water as often as necessary to keep it from freezing as the air is of a low temperature and will tend to induce freezing.

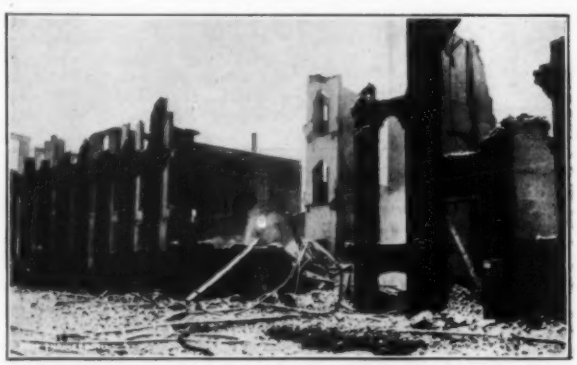
All lines should be free from leaks and when a leak is found it should be repaired at once as it will keep the compressor pumping too often. The compressor should not operate more than once or twice a day under normal conditions unless air is taken from the tank for signalling purposes which will necessitate the pump running to replace it in the tank.

A house should be built around the horn to protect it from the severe weather and if the valve is installed at this point a heat coil must be provided.

There must be at least thirty feet of pipe between the compressor and the tank to allow the air to cool before entering the tank. The check valve should be inspected often to see that it is operating properly. If this valve is not correct the compressor will be kept operating too long and some of the air will rush from the tank back towards the compressor and the tank will lose air.

The safety valve should be checked by allowing the compressor to operate over its capacity for a short while till the safety valve blows. If the valve does not operate it will require attention at once as it will cause severe damage if let go.

The next article will take up the planning of a municipal installation and will be given in two parts. Part 1 taking in the circuits, alarm boxes and batteries; Part 2 covering switchboards, repeaters, transmitters and all auxiliary equipment.



Silk Mill Destroyed in $1,000,000 Fire

The major portion of the well known VanKirk silk mill in Paterson, N. J., was destroyed by fire that caused a $1,000,000 damage. Cause for the fire was unknown, but nevertheless the city had one of the largest fires in its history. The entire department was called out. There were fifty manufacturers in the building, mostly broad silk and ribbon plants. Buildings across the street occupied by a dyeing works and a mill were constantly wetted down to prevent fire from spreading to these structures. Considerable stocks of silk were lost in addition to the machinery.

New Rules of the New York Fire Department

This Ninth Installment Covers Continuation of House Watch Duty, Leaves of Absence and The National Standard

FOLLOWING is the ninth installment of the "Rules and Regulations of the Uniformed Force of the Fire Department of the City of New York," just issued by that department, and which are to be published serially in their entirety in FIRE ENGINEERING. *This book has been compiled and edited by Captain John J. McCarthy, of H. & L. No. 43, detailed in charge of the Division of Public Assembly at Fire Headquarters, who worked under the personal supervision of Chief John Kenlon. This installment includes sections covering House Watch Duty (Continued), Leaves of Absence and the National Standard:*

House Watch Duty—(Continued):

SEC. 226. Members assigned to house watch duty shall:

1. Enter upon the discharge of their duties promptly at the time designated.
2. Call the member, or members, detailed to relieve them ten minutes before the time designated for change of tour.
3. Be properly uniformed five minutes before assuming such duty.
4. Be responsible for the accuracy of entries in the Company Journal up to and including the time when relieved.
5. See that everything in the apparatus quarters is in proper order and ready for immediate use.
6. Give motors proper care and attention, when necessary, to insure their readiness for immediate service.
7. See that all apparatus and equipment is in proper condition for immediate use.
8. During night tours in winter, promptly notify the commanding officer and chauffeurs of snowfalls, and render assistance in adjusting skid chains.
9. Keep water in boilers at the proper temperature, and supply with water when necessary the boilers used for furnishing steam heat, except when these duties are otherwise provided for.
10. Carefully protect and preserve assignment books and cards.
11. Keep telegraph instruments properly wound and prevent any tampering therewith.
12. Promptly answer all telephone calls intended for their quarters, and avoid as well as prevent unnecessary use of telephone instruments.
13. Protect the Company Journal, see that all matters covered by the rules and regulations are properly reported therein, and that it is in no way defaced, torn, or tampered with.
14. When visitors present themseves at quarters, politely inquire their business, enter the name or names in the Journal and call the commanding officer.
15. See that female visitors, unaccompanied by male escort, are not permitted beyond the house watchman's desk.
16. Not permit visitors beyond the house watchman's desk after 9 o'clock at night.
17. Rise and make proper salute when quarters are visited by an official of the Department, or an officer. If the officer is the Chief of Department, the commanding officer and drivers shall be summoned to the apparatus floor, and the hoods of all motors shall be opened.
18. Exclude from quarters all solicitors, peddlers, children and persons not on official business, or visiting.
19. Have control and command of the apparatus floor and be responsible for everything that takes place thereon or in front of quarters. Conduct on the part of any member detrimental to the interests of the Department, or in violation of rules, laws or orders, shall be carefully noted.
20. Call the commanding officer immediately if anything exists in or about quarters which cannot be controlled by their order.
21. Be responsible for correctly receiving and reporting every signal station sounded on the gong, or any alarm from any cause, whether telegraphic, verbal or visible.
22. Upon receiving a verbal alarm, immediately sound the combination bell, assist in preparations to leave and, when assigned, proceed with apparatus.
23. Keep a record in Company Journal of all irregularities of telephone or telegraph circuits.
24. Make entries in the Company Journal as directed by commanding officers.

SEC. 227. Members assigned to house watch duty SHALL NOT:

1. Leave quarters without permission, except when responding to alarms.
2. Lounge, recline, doze or sleep.
3. Permit any violations of rules, laws or orders on the apparatus floor, nor in front of quarters.
4. Make false or misleading entries in Company Journal.
5. Deface, destroy or mutilate any part of the Company Journal.

SEC. 228. On tours of duty performed by two members, the house watchman shall be of the superior grade, but he and the Assistant House Watchman shall be held equally responsible for any neglect of duty.

SEC. 229. All members shall assist the house watchman in properly performing the duties by reporting to him when entering or leaving, or on matters affecting the business of the Department.

Leaves of Absence

SEC. 230. There shall be classified as regular, special, vacation, emergency, death and meal leaves.

SEC. 231. These leaves shall be arranged for as follows:

A *regular leave* of absence for 24 hours from morning roll call shall be granted to every uniformed and ununiformed member every sixth day (Deputy Chiefs excepted) subject to the power vested in the Fire Commissioner and the Chief of Department.

When the platoon system is suspended, members shall be granted regular leaves of absence for 24 hours according to platoon schedule.

A *special leave* of absence (without pay) shall be applied for, in writing, to the chief of Department, at least 24 hours in advance of the morning roll call of the date on which the leave is desired. Special leaves shall be for a period of not less than six hours, and shall be for a definite continuous period of time.

SEC. 232. Vacation leaves shall be granted as follows:

Chief, and acting chief officers	30 days
Company officers	23 days
All other members	17 days

Vacation leaves for all ranks below Chief Officers shall be arranged so that a regular 24 hour leave precedes and follows the periods given above.

All vacation leaves shall be concluded by December 31st in each year.

SEC. 233. Vacation leaves shall not be granted to two officers in the same command for the same calendar period, except when necessary in double companies.

SEC. 234. Vacation leaves for all grades below the rank of Lieutenant shall be arranged so that in single companies one vacation period will not overlap another period by more than two days. In double companies, or combination companies, vacation periods may overlap for not more than eight days.

SEC. 235. Ununiformed firemen who will have served six months before or on December 31st shall be granted a vacation leave after the fifth month of service.

SEC. 236. Sick leaves of absence may be granted by Medical Officers and Honorary Medical Officers. Members shall not apply for sick leaves of absence without notifying their commanding officers.

SEC. 237. A death leave of absence for the period named below shall be granted, by Deputy Chiefs of Department, to bereaved members who will attend the obsequies of the deceased:

In the event of death of a wife or child	5 days
In the event of death of a parent, brother or sister	4 days

These leaves shall begin at morning roll call of the day following receipt of notice of death, and members affected shall be excused from tours of duty intervening between receipt of notice and the following morning roll call.

SEC. 238. An emergency leave of absence for a reasonable period may be granted by a Deputy Chief of Department when notified by a commanding officer of the serious illness of a parent, wife, child, brother or sister of a member. Commanding officers shall, as soon as possible after the granting of such a leave, make an investigation to determine the validity of the request, and report thereon to the Chief of Department, through regular channels.

SEC. 239. During a temporary suspension of the two-platoon system meal leaves shall be granted, beginning 48 hours after the transmission of the re-call signal, as follows:

Two and one-half hours twice a day.
Five hours once a day.

All meal leaves shall be completed by 8.00 p. m. each day.

(*Continued on page* 242)

CHIEF KENLON IS HONORED ON FORTIETH YEAR AS FIREMAN

Dinner Dance Given Him at Hotel Biltmore—Department Presents Diamond Badge —Congratulations from Here and Abroad

THE fortieth anniversary of Chief John Kenlon, of the New York City Fire Department, as a member of the fire-fighting forces of the big city, was fittingly celebrated on the evening of March 3 by a dinner dance at the Hotel Biltmore, given in his honor by friends inside and out of the department.

Chief John Kenlon, New York City

Chief Kenlon spent the day receiving the congratulations of well wishers and comrades. One of the first callers on the Chief in his office in the Municipal Building was Capt. Daniel Lawlor, the officer under whose command the chief first served with Engine 13 in Wooster Street, now in command of Hook and Ladder No. 114 in East 125th Street, still sturdy and active despite fifty-three years of active service. Many other veterans still in the service or retired, who served with the chief in his recruit days, dropped in to congratulate him. A six-foot floral horeshoe was presented to the chief by his office force.

At the dinner dance, at which there were some eight hundred guests, Deputy Chief George L. McKenna presented Chief Kenlon with a diamond studded badge in behalf of the department and to take the place of a similar one which was either lost or stolen two years ago. Honorary Deputy Chief Robert H. Mainzer presented, in behalf of several friends, a diamond bracelet to Mrs. Kenlon.

W. P. Larkin, an old friend of the chief, told of his childhood in the north of Ireland, of his going to sea as cabin boy at the age of 16, and of his becoming a ship's master when 21 years old.

Chief Kenlon responded with reminiscences of "the old days, when there were a few horse drawn surface cars," and went on to describe the old fire apparatus, "clanging down the street with sparks and black smoke belching from the smoke stack, with gong clanging behind a spanking, galloping team of bays."

Letters of congratulation and commendation were read from Governor Smith, Cardinal Hayes, Mayor Walker, Judge Olvany, and from the heads of the fire departments of Paris, London, San Francisco and Berlin. A large number of chiefs from all parts of the United States and Canada also sent their congratulations.

Fire Alarm Superintendents Meet

The mid-winter meeting of the Eastern Association of Superintendents of Fire and Police Telegraph was held at the Boston fire alarm headquarters in The Fenway, Boston, Mass., on February 9 and 10.

On the first day there were addresses by H. M. Towne, of the General Electric Company, Pittsfield, Mass., on "Fundamental Problems of Lightning Protection" and by Timothy C. O'Hearn, city electrician of Cambridge, Mass., on "Standardization of Fire and Police Signaling Apparatus."

W. J. Carrol, of the Gamewell Company, of Newton Upper Falls, Mass., read a paper on "The Systematizing of Records Pertaining to Fire Alarm Departments". He said that after investigating the record keeping systems of fire and police telegraph superintendents in fifty cities it had been found that the best and most complete fire alarm records were kept by Supt. Corcoran, of New Haven, Conn., and the best system of police records by Supt. Cook, of Meriden, Conn.

A dinner was held at the Hotel Westminster in Copley Square and this was followed by a round table discussion. On the second day there was an address by F. A. Raymond, electrical engineer of The Gamewell Company, on the subject of "Project Engineering as Applied to Municipal Signaling Systems". In the afternoon a tour of inspection was made to the new central fire alarm office in Brookline.

The officers of the association are as follows: President, Edward A. Sullivan, supt. fire alarms, Hartford, Conn.; first vice-president, Alfred C. Ames, supt. fire alarms, Providence, R. I.; second vice-president, M. F. Orrell, supt. fire alarms, Worcester, Mass.; and secretary-treasurer, George H. Bowen, supt., Boston Automatic Fire Alarm Company.

HARRY BELKNAP.

S. J. De May Now Chief of Detroit

Stephen J. De May was installed as chief of the fire department in Detroit, Mich., to fill the vacancy caused by the resignation of Chief Edward H. Meginnity. Michael Callahan was advanced to assistant chief.

The chief's office was banked with flowers sent by many friends and admirers. Previous to the swearing in of the new appointees, a dinner was arranged in their honor by the Detroit Firemen's Fund Association.

C. Hayward Murphy, chairman of the board of fire commissioners, conferred the badge of promotion on the new chief. He said in part:

"It is my privilege as chairman of the board of fire commissioner's to notify you of your promotion to the position of chief. I have spent a good many years following fire departments and I know we have a man fully equipped to take care of the job here. I don't think I need to tell you, Chief De May, that you have fallen into a hard job. The Detroit department is the third or fourth largest in the country. You have the confidence of the fire commissioners and the entire city government, and I know that you will live up to the traditions and the spirit of service that has characterized the department since it was founded."

Plenty of Action at Hardware Fire

Three men blown from a ladder by an explosion of gunpowder, one overcome by fumes, and a constant sleet and rain storm added more than the usual zest to a fire in a hardware store in Chester, Pa., recently.

A whole city block was threatened and many families living in apartment buildings were forced to vacate their quarters. Firemen had a six-hour battle before the fire was brought under control.

The fire started from an unknown cause in the second floor of the brick building which contained general hardware supplies including paints and oils. When the first company arrived, the

Fire Which Gave Chester, Pa., Firemen Six-Hour Battle

fire had burned through several floors and had made a good headway.

Chief John F. Bauer was in charge of the fire, the equipment at which included two Seagrave, three Ahrens-Fox and one American-LaFrance apparatus.

Comm. Hultman Confers on Incendiary Fires—Comm. Eugene C. Hultman of Boston, Mass., held a conference with the district attorney in reference to the large increasing number of incendiary fires in the city.

WITH THE EDITOR

A Fire Company or Not A Fire Company?

From time to time the question may be expected to arise as to whether a fire patrol or salvage corps can or cannot claim recognition as a regular fire company, and its members be considered as part of the local fire department—in other words whether the fire patrol is a separate and distinct organization, or an integral part of the fire department.

As against the argument that the fire patrol is a separate organization, may be set the fact that many fire departments throughout the country, in cities and villages large and small, paid and volunteer, have, of their own volition taken up such work as a regular part of their operations.

If one is looking for a concrete argument, perhaps the best answer would be to point to the career of the man who has just retired from active service in the New York Fire Patrol—Assistant Superintendent Albert Sidney Johnston. No one who knows "Captain Sid"—in spite of the fact that he has spent his years as a member of the patrol—would attempt to deny that he is an example of the practical fire-fighter in the most exacting sense of the word.

In the majority of cases where a city has established a fire patrol or salvage corps, the men assigned to it have been taken from the ranks of the fire department, and new additions to its membership are required to go through the same schooling as those that are to join the ranks of the fire-fighters. In fact, in some cases, men are assigned to the patrol for certain periods only and are then returned to the department ranks, thus giving all members a chance to learn the duties of salvage work.

The claim, therefore, that a salvage corps is not a part of the fire department would seem to have little or no foundation in fact, and to be based entirely upon a misunderstanding of the duties of such organizations.

A Notable Fire Prevention Record

One of the cities with an enviable fire prevention record is Albany, Ga. It has already captured two awards for excellence in this respect—the 1924 award of the Fire Waste Council and the United States Chamber of Commerce for greatest progress in fire prevention of any city in the country of 20,000 population or less, and the grand award in 1925 from the same source, in competition with 500 other cities.

The annual report of Chief D. W. Brosnan, of the fire department, just issued, shows that the fire department of Albany has kept up the good work and that the city is still far in the van in matters of the reduction of the fire loss.

Chief Brosnan calls attention to the fact that a reduction of the fire insurance rates in Albany in 1926 netted the property owners a saving of $35,000. Setting this against the cost to the city of the fire department's maintenance—$33,289.74—it is shown that the fire department has saved the citizens more than its total cost for the year. This is certainly a record to be proud of.

Discouraging the Chief

The head of the fire department must have the wholehearted backing of the city or village authorities, if the efficiency of the fire department is to be maintained at a high standard.

How often, however, is the reverse the case! Sometimes for political reasons; in other cases, from mistaken economy, and in still others for reasons arising from personal animosity, the recommendations of the fire chief looking to the improvement of the fire department are either denied or ignored. These recommendations may take the form of increased fire-fighting facilities, additional apparatus, more and better placed fire hydrants, increase in membership of the fire department, better tools and drilling facilities to increase the efficiency of the men, and so on.

But whatever form such recommendations take, the municipal authorities are assuming a grave responsibility when they fail to work in harmony with the department head and see that he gets what is needed to make the department complete.

A case very much to the point occurred recently in New York State in one of the big towns lying along the Hudson River. The chief of the department—a volunteer organization—who is looked upon as an able fire-fighter and a competent executive, petitioned the authorities for an appropriation for needed equipment and supplies. But a wave of "economy" had passed over the city heads and the chief met with nothing but discouragement.

Then came the inevitable fire, and the department found itself, as predicted by its head, unable to cope with the situation. The result was a fire of almost conflagration proportions and a loss of many times what the requested appropriation would have totaled.

Such "economy" is as shortsighted in its policy as it is evil in its results. The recommendations of the fire chief are made only after careful deliberation, and should not be turned down without the most careful investigation. In fact, it is hard to conceive of a policy on the part of the city authorities which is predicated on antagonism and distrust of the motives of the fire depart-

ment head. If he is not capable of knowing what the real needs of his department are, then he is not worthy to hold the post to which he has been appointed. And if he does know what is needed for attaining the utmost efficiency of his forces, there should not be a moment's hesitation in giving him all that he asks for.

Fighting the Fire Bug

Fire chiefs, perhaps more than any other class of individuals, are interested in the suppression of the fire bug, as they are continually coming in contact with his work. Incendiary fires are usually quick and hot ones, as the arsonist uses gasoline, kerosene or other inflammables to hurry combustion and insure a complete job. Then, too, he conceals the fire so as to delay its discovery, and to give it a good start. All of this makes the fighting of incendiary fires one of the most troublesome of duties of the fire chief and his men.

Many fire prevention agencies are now working to make the business of the fire bug an unprofitable one. The N. F. P. A. and the Fire Marshals Association of North America, now a section of the former, are jointly considering the formulation of a model arson law. In six states, arson laws are now under consideration. The states are Alabama, Iowa, Tennessee, Indiana, Ohio, and West Virginia. In others, similar legislation is contemplated.

In a recent bulletin, the department has this to say on incendiarism:

"Public opinion has not been generally developed and crystallized to the point where arson has been looked upon in its true light as a serious form of crime. One reason for this is that the public's sympathy is often extended to the person arrested on such a charge, especially if his own property has been burned. Experience has indicated that most incendiary fires are started for revenge or spite, for the purpose of concealing evidence of another crime, or for purposes of fraud, particularly when the property is insured. A number of fires are ignited by pyromaniacs who are mentally unbalanced and are not, therefore, responsible for their actions."

The International Association of Fire Chiefs will take vigorous action a little later toward checking incendiarism. Thus, with all of these agencies working against him, the fire bug may find rather hard sledding. The control and practical elimination of this nefarious type of crime, if brought about, will be one of the high spots in the accomplishments of fire protection, and will lessen by a large amount the huge fire loss which this country is experiencing annually.

Kentucky Association to Meet in June

The ninth annual convention of the Kentucky State Fire Chief's and Firemen's Association is to be held according to information just received from its secretary, Captain S. G. Render, fire department instructor, 303 Speed Building, Louisville, Ky., on June 21 to 23, at Owensboro, Ky.

There will be an exhibit of fire apparatus and appliances in connection with the convention. This will be arranged for in a large local garage building, and there will be no charge for space. Information can be had from Chief Edward E. Cureton, of Owensboro, or from the secretary.

Secretary Render looks for an attendance of about 300 at the convention.

Bookings of "The Fire Brigade" Increase

Additional bookings of the "Fire Brigade," the motion picture sponsored by the International Association of Fire Chiefs, are being received daily. The following list contains the additional bookings that have been received since the publication of the lists in the previous issues of FIRE ENGINEERING.

CITY	THEATRE	DATE
Arkansas		
Crossett	Crossett	March 14-15
Gurdon	Wright	April 6-7
Holly Grove	Royal	May 19-20
Monticello	Amuzu	June 2-3
Newport	Capitol	Aug. 4-5
California		
Alturas	Empress	March 31-April 1
Atwater	Atwater	April 20-21
Auburn	Auburn	March 22-23
Berkeley	U. C.	March 20-26
Campbell	Orchadr City	March 27-28
Cedarville	Cluck	April 23
Dixon	Palace	March 9-10
Dunsmuir	California	March 14-15
Elgrove	Community	April 1
Fall River Mills	Paramount	June 4
Lodi	Lodi	April 11-12
Mt. Shasta	Shastora	March 27-28
Newcuslpe	Community	March 14-15
Paso Robles	New Park	April 18-19
Petaluma	Mystic	March 31-April 2
Richmond	California	April 6-7
Santa Rosa	California	April 11-12
Sausalito	Princess	March 10-11
Selma	Selma	April 4-5
Soldad	J & J	April 7-8
Susanville	Liberty	April 11-12
Tulare	Tulare	April 4-6
Weed	Club	March 31-April 2
Connecticut		
E. Haven	Community	April 8-9 changed from March 25-26
Hartford	Grand	March 22-79
Mystic	Strand	March 21-22
New Haven	Garden	March 28-30 changed from March 29-31
New Haven	Majestic	April 7-8
Norwich	Breed's	March 15-19
Thompsonville	Franklin	April 26
Florida		
Key West	Monroe	May 3-4
Monticello	Katherine	April 18-20
W. Tampa	Casino	July 18-19
Ybor City	Casino	July 15-17
Idaho		
Cour D'Alene	Liberty	March 17-18
Kellog	Liberty	March 17-18
Illinois		
Jerseyville	Colonial	April 20-22
McCarmel	American	May 9-10
Nokomis	New Palace	April 27-28
Pana	Palace	April 25-26
Quincy	Orpheum	April 11-16
Robinson	Strand	April 4-5
Vandalia	Orpheum	April 20-21
Iowa		
Burt	Mornesa	April 28-30
Bloomfield	Iowa	May 16-18
Cedar Rapids	Majestic	April 3-9
Correctionville	Radio	March 21-23
Hamberg	Colonial	May 17-19 changed from June 14-16
Harlan	Majestic	April 3-9
Independence	Strand	April 24-30
Mt. Ayr	Princess	May 25-27
Mt. Pleasant	Temple	April 25-27
Pocohontas	Rialto	March 22-24
Reinbeck	Princess	May 4-5
Sidney	Cozy	March 21-23
Washington	New Graham	March 31-April 2
Indiana		
Attica	Messner	April 17-19
Batesville	Gibson	April 27-29
Bluffton	Gaiety	March 22-24
Connersville	Auditorium	May 17-19
Kokomo	Isis	March 20-26
Lebanon	Colonial	April 19-20
New Castle	Royal	May 8-12
Richmond	Washington	March 27-31
Rockville	Ritz	April 17-19
Shelbyville	Strand	April 5-7
Terre Haute	Liberty	April 24-May 1 changed from April 17
Kansas		
Atchison	Orpheum	March 21-24
Atwood	Electric	April 7-8
Colby	Lyric	April 6-8
Hays	Strand	April 18-19
Leavenworth	Orpheum	March 21-23
Liberal	Tucker	May 23-24
Manhattan	Miller	March 14-17
Newton	Regent	May 2-4
Norton	Cozy	April 18-19

(Continued on page 235)

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Engine Pressure, Friction Loss, Etc.

To the Editor:

Below are two questions handed me by members of my company. Will you publish answers to them in an early issue of your magazine.

Respectfully yours,
M. E. A.

Question 1: (A) An engine is pumping through 500 feet of 3-inch hose equipped with a 1¼-inch nozzle. Engine pressure is 120 pounds. What is the nozzle pressure? What is the discharge in gallons per minute?

(B) What is the advantage of using siamesed lines of hose over single lines of the same size?

Answer 1: (A) The first part of this problem is solved by employing the Underwriters Formula. This formula is: nozzle pressure equals engine pressure $(1.1 + K \times L)$.

The value of K for 3 inch hose with 1¼-inch nozzle may be used directly or the hose may be reduced to 2½-inch and then the factor for 2½-inch hose with 1¼-inch nozzle be employed. The latter is the method shown below.

The factor for reducing 3 inch hose to 2½-inch is 2.6. $500 \div 2.6 = 192$ feet of 2½-inch hose.

K for 2½-inch hose with 1¼-inch nozzle is .248.

L, the number of 50 foot lengths of hose in the line, is equal to $192 \div 50$ or 3.84.

$$\text{Nozzle pressure} = 120 \div (1.1 + .248 \times 3.84)$$
$$= 120 \div (1.1 + .952)$$
$$= 120 \div 2052 = 58.5 \text{ pounds nozzle pressure.}$$

Discharge is secured by the formula: $30 \times D \times D \times \sqrt{P}$ where D is the nozzle diameter in inches and $\sqrt{P}$ the square root of the nozzle pressure.

$$\text{Discharge} = 30 \times 1¼ \times 1¼ \times \sqrt{58.5}$$
$$= 30 \times 1.25 \times 1.25 \times 7.59 = 356 \text{ gallons per minute.}$$

(B) The advantage of using siamesed lines of hose instead of single lines of the same length is the reduction in friction loss and the consequent improving of the nozzle pressure. Whatever pressure is lost in friction reduces the available engine pressure just so much, and thereby reduces the nozzle pressure.

If, for instance, a line of hose is laid along a level and there were no friction in the line of hose then the nozzle pressure would be equal to the engine pressure. This, however, is impossible for there is always some friction. Using parallel lines of hose instead of a single line reduces the velocity of flow and this reduction in velocity of flow results in a direct reduction in friction loss.

Question 2: It is desired to throw a stream from the roof of a five story building across a 50 foot street (the effective reach of the stream to be 70 feet). A 1½-inch nozzle on the following hose layout is to be used: two 300 foot lines of 3-inch hose from engine to 6-inch standpipe connection at street; two 200 foot lines of 2½-inch hose from standpipe to pipe (nozzle) on roof. What pressure will be required at the engine?

Answer: The method of solving this problem resolves itself into reducing the hose layout into the equivalent of a single line of 2½-inch hose. In other words reduce the two parallel lines of 2½-inch hose to the equivalent of a single line; reduce the two parallel lines of 3-inch hose to 2½-inch hose — single line. Then add the two stretches so found and we have the hose layout reduced to its equivalent in a single line of 2½-inch hose. Thereupon employ Underwriters Formula to find necessary engine pressure to give desired nozzle pressure with the above layout. The engine pressure so found does not take into account the back pressure due to the elevation of the nozzle above the street nor does it take into account the friction loss in the standpipe system.

Both of these figures must be added to the engine pressure as found by Underwriters Formula to get the correct engine pressure.

The steps are as follows:

Reduce the two 200 foot lines of 2½-inch hose to a single line by dividing by 3.6. This gives 55.5 feet of 2½-inch hose. Reduce the two parallel 300 foot lines of hose into 2½-inch either by dividing directly by the factor 9.35 or first dividing the 300 by 2.6 and then dividing by 3.6.

The factor 9.35 is the factor for reducing parallel lines of 3-inch hose directly into a line of 2½-inch hose.

The factor 2.6 is the figure for reducing single lines of 3-inch hose to a single line of 2½-inch hose and the factor 3.6 is the factor for reducing two parallel lines of 2½-inch hose into a single line of 2½-inch hose.

Either of the above operations, in reducing the 300 foot parallel lines of 3-inch into 2½-inch, will give 32 feet of 2½-inch hose.

The total length of 2½-inch hose in the layout is then $55.5 + 32$ or 87.5 feet of 2½-inch hose.

Now as the stream must carry 70 feet, according to the problem, a nozzle pressure of 70 pounds will be necessary. This is based on the Fire Department Rules which allow one foot range for each pound of nozzle pressure.

Thus the nozzle pressure will be 70 pounds.

Employing the Underwriters Formula to find engine pressure where the nozzle pressure is 70 pounds and where the layout of hose is 87.5 feet of 2½-inch, we get the following:

$$\text{Engine pressure} = \text{nozzle pressure} \times (1.1 \div K \times L)$$
$$= 70 \times (1.1 + .505 \times 1.75)$$
$$= 70 \times (1.1 + .88375)$$
$$= 70 \times 1.98375 = 138.86 \text{ pounds engine pressure.}$$

The engine pressure so calculated is that pressure necessary to overcome friction loss in hose layout only and give nozzle pressure.

But the engine pressure must also overcome the friction in the standpipe system and the back pressure as well.

Friction in a standpipe is usually allowed at 25 pounds.

The back pressure is found as follows: Number of stories times height of story times, 434 or $5 \times 12 \times .434$, equalling 26 pounds.

The corrected engine pressure is then $138.86 + 25 + 26$ or 189.9, or 190 pounds.

Carbon Tetrachloride Fumes

To the Editor:

Will you please publish at your earliest convenience data on the hazard of carbon tetrachloride fumes to firemen or civilians when these fumes are encountered in a confined location?

Also, the hazard due to exposure to fumes from a fire where a carbon tetrachloride stream is being used to extinguish a blaze.

Sincerely yours,
H. H. B.

Answer: When C. T. C. extinguishers were introduced, about seventeen years ago, it was observed that under certain conditions the decomposition of the liquid by heat gave rise to toxic and poisonous fumes, which were presumed as possible inimical to human life. As a matter of fact there is no more danger in the use of C. T. C. on fires than any other liquid, provided there is ample ventilation.

The combustion of any ordinary material generates gases of a toxic and poisonous effect, e. g., carbon monoxide, acrolein, pyroligneous acid (wood), sulphur compounds, etc. These gases are given off in more or less great volumes, with smoke, and because of this fact, firemen, when working on these fires in confined spaces, use gas masks or smoke helmets, etc. Prior to the employment of breathing apparatus in smoky fires, the fatalities amongst firemen by asphyxiation, or gas poisoning, were frequent, and partial asphyxiation and mild poisoning were of everyday occurrence, and disabled the victims for days at a time.

The concentrated extinguishing power of C. T. C. caused it to be very quickly adopted in all industries where it is specially effective as a fire extinguisher, with the result that many thousand fires were nipped out in their incipiency, which otherwise would have developed into very serious outbreaks. And it is a coincidence that the efficiency of C. T. C. gave rise to many objections to its use, i. e., that it developed, under disintegration by heat, toxic and poisonous gases. Fires involving highly inflammable combustibles, which previously had to be fought at

a distance, due to the great heat and fumes, or left to burn themselves out by damping down the surroundings, are now attacked by first-aid c. t. c. at close quarters, with the natural result that the operators are liable to get a whiff of the acrid c. t. c. gas, which is slightly more unpleasant than heavy smoke, but not more dangerous under ordinary conditions.

Indeed, there is an advantage often with c. t. c., in so far that the spread of the fumes is more sluggish than ordinary smoke charged with toxic poisonous gases of combusting material. Notwithstanding, there are certain classes of fires in which the smoke from the burning material may not be present in large quantity, but the use of c. t. c. immediately generates a heavy volume of c. t. c. gases. The fire is quickly extinguished with little damage, which otherwise might have been very heavy, but the operator of the c. t. c. extinguisher, having to fight the fire at close quarters, may not be able to avoid inhaling some of the fumes. The effect, however, of the inhalation is only temporary, unless the fire has occurred in a very small space, with deficient or no ventilation.

This statement is contrary to the opinion of many persons, but is nevertheless true, and has been definitely established beyond doubt, by careful tests.

Analyses of the gases given off by the decomposition by heat of c. t. c. have been made by the British National Physical Laboratory, the United States Bureau of Mines and the Underwriters' Laboratories of Chicago. The results of the tests have been very similar in all cases, varying in detail only, according to the class of chemical mixed with the pure carbon-tetrachloride in order to reduce its freezing point; the freezing point of pure c. t. c. is about 9° F. The chemicals added to the pure c. t. c. in addition to carbon-disulphide, may be either chloroform, turpentine or flammable petroleum oils.

The gases and proportions thereof given off by decomposing standard c. t. c. fire-extinguishing liquids on wood fires are as follows: dry gas, per cent. by volume, oxygen, 15.5; carbon dioxide, 4.6; chlorine, nil; carbon monoxide, nil; sulphur dioxide (present only with carbon disulphide in liquid), hydrochloride acid, 0.16; phosgene qualitative test, present; phosgene, parts per million, 3. Where 10 per cent. chloroform was present in the c. t. c. the phosgene amounted to 149 parts per million.

On alcohol fires the proportion of oxygen was 17.4, carbon dioxide, 5.6, carbon dioxide and chlorine, nil, hydrochloric acid 0.1, phosgene 95 parts per million.

On petrol fires the gases present were: oxygen, 19.4 per cent.; carbon dioxide, 1.5 per cent.; carbon-monoxide and chlorine, nil; hydrochloric acid, 2.08 per cent.; phosgene, 2 parts per million. With carbon disulphide present in c. t. c. the phosgene quantity was 160 to 1,000,000.

The tests conducted by the U. S. Bureau of Mines gave chlorine gas as present in the proportion of 10 to 23 parts per million. This gas is present only when the c. t. c. liquid is applied to hot iron.

Carbon tetrachloride ($C.Cl_4$) is a light, colorless fluid with a peculiar odor. It is non-inflammable and evaporates quickly when exposed to the air.

Phosgene (C. O. Cl_2) is a colorless gas, extremely poisonous, and was largely used in the Great War as a poison gas.

Chlorine gas (Cl_2), is a heavy, greenish-yellow gas and very poisonous.

Hydrogen chloride gas (hydrochloric acid gas, muriatic acid gas) HCl., is a colorless, poisonous gas.

Carbon tetrachloride gas is only slightly poisonous compared to phosgene and chlorine; its effects being similar to chloroform.

In open spaces with good ventilation these gases will not be formed in quantities sufficient to give a concentration of poisonous fumes dangerous to the operator of the extinguisher.

The tests in which the proportions of gases given above were found present were made in enclosed spaces. In order to be able to take samples of the atmosphere therein during the tests, the U. S. Bureau of Mines used a gas-tight room, 1,000 cubic feet capacity.

C. T. C. gas, it was found, might be present in quantities of from 2,000 to 5,850 parts per million. This amount is less than the maximum of 4,000 to 6,200 parts per million which can be inhaled for one hour without serious disturbances. It is less than one-tenth of the concentration required for the lethal or fatal dose for a half-hour exposure.

Hydrochloric gas may be present at the percentages given, in quantities of from 60 to 236 parts per million. This amount cannot be inhaled for one hour without serious disturbances, but it is much less than the concentration of from 1,000 to 2,000 parts per million which is dangerous after a half-hour exposure.

Chlorine gas, we have pointed out, is only present when the c. t. c. fluid is applied to hot iron, and may have a concentration of 10 to 23 parts per million. Its presence can just be detected when there are 3.5 parts to the million; it irritates the throat when 15.1 parts to the million, and causes coughing when 30.2 parts to the million. The maximum amount which can be inhaled for one hour, without serious disturbances, is 4 parts per million, and 40-60 parts per million are dangerous in thirty minutes to one hour. The quantity found present, 10-23 parts per million, is in excess of the quantity which can be inhaled for one hour without serious disturbances, and it is of sufficient concentration to irritate the throat and render it impossible to breathe for several minutes, but it is very much less than the concentration necessary for fatal effects. Care should be taken to avoid the fumes should the c. t. c. fluid strike hot iron—it is easy to evade the fumes in open spaces.

Phosgene gas may be present in quantities of from 2 to 160 parts per million, and at 5 parts per million it is impossible to breathe for several minutes. At 25 parts per million fatal effects may follow after half-hour exposure.

The military phosgene gas for minimum effective concentration contains about 1 part phosgene to 2,000 parts of air, and the lethal dose is about 1 to 40,000 parts for thirty minutes. The maximum concentration in the tests was only obtained when about 12 sq. ft. surface in the case of liquids and even more in the case of wood was exposed to 1 to 5 gallons of sprayed c. t. c. liquid, under conditions designed to give maximum production of fumes. Tests on a small scale in a box 12x12x20 inches, with both petrol and alcohol flames, gave only traces of phosgene.

The gases have a corrosive effect on bright metal, but not to any serious extent if precautions are taken to remove and clean it promptly following the exposure.

The quantity of hydrochloric acid present, particularly its concentration and consequently the corrosive action on metals, depends upon the conditions at the fire. The concentration and corrosion will be greater where access of air is retarded, as in a vault, but under ordinary conditions prevailing at fires the corrosion of polished steel (tools, etc.) exposed to the fumes will be negligible if the metal is promptly cleaned.

The quantity of gases formed as when extinguishing incipient and small fires is not dangerous to life, although the very unpleasant and irritating character of the hydrochloric gas acts to prevent very prolonged exposure of operators to c. t. c. extinguishers. The phosgene gas is certainly poisonous, but the concentration of this gas in ordinary fires is not likely to endanger life on temporary exposure. But in small closed spaces such as a vault, a small closed closet, or cellar room, particularly where there are not means of prompt exit, there is danger. Whatever type of extinguisher is used in such places, the smoke from the burning materials would necessitate the use of a gas mask or other breathing apparatus.

The danger of poisonous fumes where acids or chemical supplies are to be extinguished should be recognized and safeguarded, according to the conditions, whatever the type of extinguisher employed, soda and acid, foam, or c. t. c.

Thousands of tests in extinguishing fires by c. t. c. liquid have been made during the last fifteen years by the Underwriters' laboratories, and no apparent injury to the health of the operators has been experienced, although the irritating fumes caused lachrymation, and in some cases resulted in a subnormal feeling for several days. The tests were made under varying conditions and included the use of small rooms partly ventilated, with repeated exposure, in some cases, for hours at a time.

Method of Drying Hose

In a recent issue of FIRE ENGINEERING, there appeared a reply to a reader who described information on the drying of hose. Since then, information has been obtained on a system patented by Chief F. Dubois, Kenora, Ont.

The hose is fastened at the male end and hoisted to the top of the tower by means of a pulley that is swivelly mounted. At the top of the tower there is a rack from which the hose is hung. The inventor claims that only one man is required to lower the hose and that all hose is lowered from the tower from the ground floor.

Andover, Mass., May Purchase New Apparatus—Andover, Mass., is considering plans to purchase a pumper.

Winchester, Mass., Holds Annual Ball—The annual ball of the Winchester, Mass., Firemen's Mutual Aid Association was held on February 4, in the town hall. Chief David A. DeCourcy acted as chairman of the reception committee and floor marshal.

Massachusetts Chiefs Attend Fire—As a grand finish to the annual ball of the Attleboro, Mass., fire department, a serious fire was reported. Chief Fred A. Clark ordered a second alarm. Among the visiting chiefs who hastened to the fire were Chief Fred A. Leonard of Taunton; Chief Earl H. Batchelder of Centerdale, R. I.; Chief Almond of Central Falls; Chief Tufts of North Attleboro; Chief Baker of Seekonk and Ex-chief Patt of Central Falls.

$1,000,000 FIRE AT JERSEY CITY WATER FRONT INJURES 9 FIREMEN

Defective Wiring Held Responsible for Blaze—Fire-Fighters Delayed by Standing Freight Cars—60 Mile Wind

NINE firemen were injured, luckily none serious, in fighting a fire that destroyed the superstructure of a pier of the Pennsylvania Railroad along the Jersey City, N. J., waterfront, a warehouse, five loaded freight cars and fifteen empty cars and damaged two lumber yards on March 3. Defective wiring in the office of Pier K is blamed for the cause.

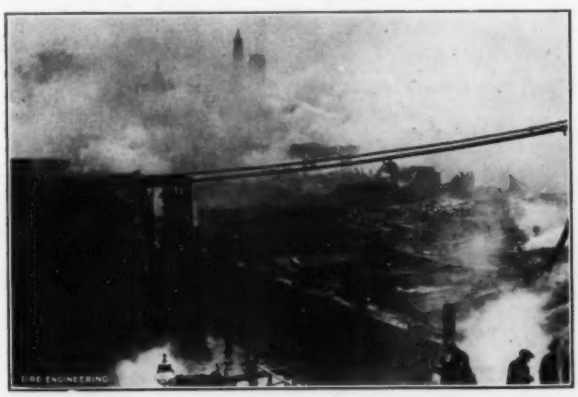
All of the fire equipment in Jersey City and the fire boats from New York city could not combat with the sixty-mile wind

Heavy Clouds of Black Smoke Hampered the Firemen in Fighting this Jersey City Water Front Fire

which was blowing at the time. One of the fire captains stated that were it not for a string of freight cars which delayed the apparatus for twenty minutes, the fire could have been confined to the place of origin.

The fire was fought under the most adverse conditions. The warehouse contained scrap rubber and lumber and this made a heavy black pall of smoke which hung over the scene and leisurely spread out towards the harbor. Most of the lumber stored in the yards was destroyed. Two frame structures, one a freight house and the other a machine shop, went up like tinder.

Chief Roger Boyle of Jersey City said that this was one of the worst fires that ever visited the city. Luckily the acrid smoke which caused the firemen to leave the scene frequently to obtain fresh air, did not cause a tie up in shipping and railroad service. At one time there were forty tug boats belonging to the railroad lined up pouring water onto the sheds. There



Wreckage of the Jersey City Fire, with the Tops of Distant Sky-Scrapers of New York City Appearing Through the Haze

was not sufficient pressure to force the streams onto the burning freight cars.

The fire was discovered at 4:20 a. m. by an engineer of a drill engine in the yards. It was not long before a second alarm was turned in and a call sent to New York city for assistance. The fire boats John Purroy Mitchell and the New Yorker were soon sent across the river. They poured immense quantities of water into the black curtain of smoke which prevented them from seeing just what they were doing. Forty rookie firemen from Jersey City were dispatched to the scene to get actual practice—and they did.

More than twelve hours after the fire, there were still four companies on the scene wetting down the burning timber. Due to the large pier facilities of the Pennsylvania Railroad, freight and train service were not hampered.

Blaze in Unfinished Apartments

The Cambridge, Mass., firemen under Chief James M. Casey, faced an unusual problem on the night of February 5 when flames for which three alarms were sounded raged in the two upper floors of Oxford Court, a large, uncompleted brick apartment house.

The building is six stories high and has four wings. It was designed to contain 105 apartments and has three separate courts, the frontage on the avenue being about 150 feet and about 300 feet on the Arlington Street side.

The fire was discovered by a patrolman and it is thought to have originated from a cigarette tossed into a pile of rubbish by a workman or else from sparks of a salamander. The workmen had left at noon and the watchman was entirely unaware of the fire raging above until the alarm was sounded by the policeman.

When Chief Casey arrived on the scene he at once ordered a third alarm, skipping the second. Flames were shooting from the windows of the two upper floors of the north section and a portion of the east side of the building was involved.

It was unsafe for men to move about inside. Stairways were uncompleted, walls had not been lathed or plastered, and there were openings in the floors which gave a fierce draft to the fire.

Two aerial ladder trucks were placed in position on the Massachusetts Avenue side of the buildings and hose lines taken to the top floor. Ladders were also raised in the first court on the Arlington Street side and lines taken to the roofs of nearby wings from which streams were directed into the blaze. Two streams were also played from the adjacent yard on the north front.

There were five Cambridge engines and three ladder trucks at the scene, also Engine 4, of Somerville. The Cambridge engines were American-LaFrance motor pumpers. Damage from fire was confined to the two upper floors and the roof, a section of which was completely burned away. The blaze illuminated the sky and attracted a large crowd to the scene. Damage was estimated at $50,000.

HARRY BELKNAP

Phones for Plumber—Gets Firemen

This would be the making of a mighty fine O. Henry story only the owner whose place was damaged did not think so.

At the present time Broadway, the famous thoroughfare of New York city, is full of the fireplace sandwich shops—stores in which an imitation fireplace is erected and a man prepares sandwiches the meat for which is heated by a steam radiator.

In this particular place known as the Hollywood Bar and Grill, the radiator blew out and the place became filled with steam. The excited proprietor called the police department in the belief that he was calling the plumbers who worked for him.

"I got steam," he shouted.

The police sergeant at the desk assured him that he should be lucky that he was getting steam on such a cold winter day. But the excited owner insisted that he wanted a plumber and the desk sergeant promised that he would get him one.

Within a few moments, the restauranter was surprised to see a hook and ladder, a water tower, a regular hose wagon and assorted disaster paraphernalia at his place. The firemen entered prepared for the worst, but they were assured that this was no place for a fireman—a plumber was wanted.

The chief heard the complaint of the owner, and suggested that the steam valve be turned off in the basement. This was done and peace and quiet was restored.

Chief Fowler of Garner, Mass., Resigns—Chief Albert A. Fowler of Gardner, Mass., tendered his resignation on February 5 with the request that it become effective at once. Ill health was given as his reason for leaving the fire service. It is expected that Assistant Chief Robert S. Tappin will be named to fill the vecancy.

Bangor Has $750,000 Fire

Three large buildings on Main Street in the heart of the business district of Bangor, Me., were destroyed by flames on the night of Feb. 13 with a loss estimated at $750,000.

For three hours the fire raged uncontrolled and assistance was called from outside cities to aid the Bangor firemen. The blaze originated from an unknown cause in the Coe Building, a four-story brick and stone structure at Columbia and Cross Streets. A second alarm followed the first within a few minutes and at

Special Trains Brought Firemen to Fight the Bangor, Me., Fire

10 p. m. a general alarm was sounded. At 11.30 Mayor John Wilson called out the members of Company M of the Maine State Guard to assist in keeping order. By this time Brewer and Oldtown had sent apparatus to the scene. Milford and Orono firemen also assisted.

From the Coe Building the fire spread through a smaller structure into the four-story brick Y. W. C. A. Building at Main and Cross Streets. From here the flames communicated with the Hatch Building. A fire wall between this building and the Rines Block stopped further progress of the flames.

The Bangor firemen worked under the handicap of a snow storm and high wind and the fact that the fire had obtained big headway before it was discovered.

HARRY BELKNAP.

Atlantic City Has Serious Fire

Seven firemen were injured, a number overcome and twelve buildings damaged as the result of a fire that started in the Peoples Market in Atlantic City, N. J., recently.

The building, which was forty-five years old, was in the mercantile district. When the first company arrived, the place

Fire Which Menaced Entire Block in Atlantic City

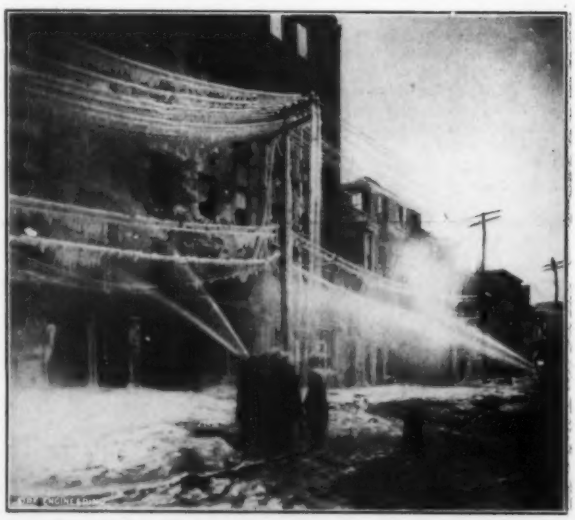
was a roaring furnace and Chief John J. Barnett sent in a second alarm. There were twelve hydrants available and six were used from which to draft water for the fifteen engine streams. Two American-LaFrance and four Ahrens-Fox pumpers were used.

One fireman fell from the roof but escaped with minor injuries. The fire spread to nearby buildings; the damage was estimated at $200,000. Considerable difficulty was experienced because of the necessity for thawing out some of the hydrants.

Children Die in Toronto, Canada, Fire

Four children died in a Toronto, Canada, fire while their parents were at a party in the neighborhood. Fire was discovered by a passerby who called a fire company that was quartered a few blocks away. When they arrived the interior was in a mass of flames. Firemen entering the upper bedroom by means of a ladder found the bodies of three children and the body of a baby in the kitchen. The adjoining house was also damaged by the flames.

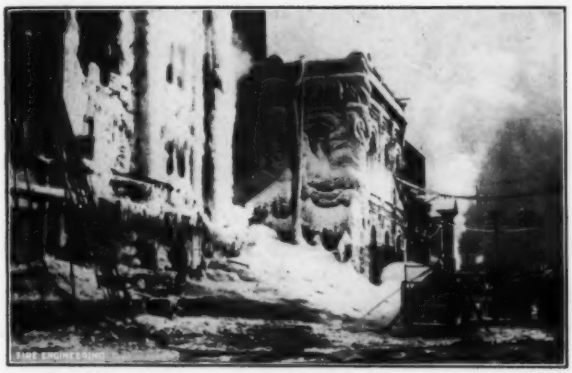
J. K. LEE, JR.



Newburgh, N. Y., Business Section Endangered

Many firemen were injured, sixteen families were made homeless and nine buildings were destroyed in a fire that endangered the business section of Newburgh, N. Y., recently. The fire started in the basement of a wholesale confectioner. One of the firemen was in a critical condition having froze to the wheel of the fire apparatus. The high winds spread the fire so that it was beyond the control of the local department. Assistance was rushed from Beacon, Middletown, Goshen, Highland Falls, Marlboro, Cornwall and Walden. A special ferry was run to take the apparatus from Beacon across the Hudson river. It is estimated that the fire which could be seen for miles along the Hudson river did $300,000 damage.

Lynn, Mass., to Purchase More Apparatus—Mayor Bauer of Lynn, Mass., has approved plans for the purchase of two additional pumpers.



Cold Wave Hampers Firemen at Rochester, N. Y., Blaze

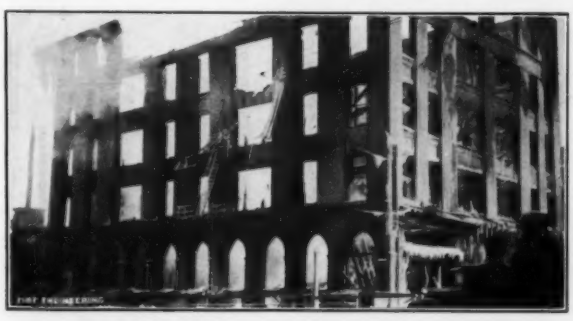
Coming at the time when the city was suffering the coldest day in the history of the weather bureau, the firemen of Rochester, N. Y., battled with a fire that damaged the Upton Cold Storage plant. The official thermometer was seven degrees below zero and the intense cold hampered the work of the men. The department worked for three days at the fire which caused a half million dollar damage Icicles several feet thick coated the storage plant.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending February 25

LAKE, MISS.—Several business buildings destroyed..... 170
LAWRENCE, MASS.—Plant of Emerson Mfg. Co. damaged... 250
PORTLAND, ME.—Store of Samuel Serotos damaged..... 25
SALT LAKE CITY, UTAH.—Hamilton's women's shop damaged 25
BELLINGHAM, WASH.—P. P. Lee Grocery Co. Bldg..... 25
BLOOMFIELD HILLS, MICH.—Residence of J. H. Muzzy..... 65
WORCESTER, MASS.—Property of S. Z. Poli, damaged..... 40
PROVIDENCE, R. I.—Tillinghast Bldg. damaged..... 40
KANSAS CITY, KANS.—Business establishments 5th & Grand Sts. 30
NEW YORK, N. Y.—Casa Lopez Club of Vincent Lopez damaged 100
CHICAGO, ILL.—Kenilworth Ave. Apt. Oak Park..... 60
COLUMBUS, O.—Stoneman Bldg. damaged..... 170
EMPORIA, VA.—A. A. Slagle's flour mill..... 35
ST. LOUIS, MO.—Bldg. of C. J. Kostuba Co..... 25
PORT ROYAL, PA.—S. Beshore store & adj. property..... 25
PHILADELPHIA, PA.—Warehouse, Gandy Storage Co..... 800
MOOSE JAW, QUE.—City Hotel and adj. property damaged.. 25
PADEN CITY, W. VA.—Factory of Paul Wishmach destroyed.. 80
WALLINGFORD, CONN.—Goldman Bldg., Quinnipiac St..... 80
WESTVILLE, CONN.—Bldg. occupied by West Rock Wagon Wks. 70
WALTERS, MASS.—Houston Bros. mill damaged..... 25
IRVINGTON, N. J.—Garage at 140 Ellis Ave..... 40
FERNIE, B. C.—Fernie Hotel destroyed..... 65
GEORGETOWN, DEL.—Methodist Church damaged..... 25
RAQUETTE LAKE, N. Y.—Raquette House and adj. property.. 340
BALTIMORE, MD.—Brodie Store and Theatre damaged..... 80



Office Building Destroyed in Mason City, Ia.

Fire starting from an unknown cause in the Central Trust Building in Mason City, Ia., caused $200,000 damage. When the firemen arrived at 3 a. m. the fire was breaking through the roof by way of the elevator shaft. While the fire did not communicate to the nearby buildings, sparks blown from this fire stated eight other small fires that were soon extinguished without much damage.

PHILADELPHIA, PA.—Patten Furniture Co. plant..... 25
MONTREAL, QUE.—Mill of Montreal Glass Products, Ltd.... 25
BENTON, ARK.—E. A. Parker Stave Co. property..... 25
PHILADELPHIA, PA.—Plant of Wilson-Martin Co. damaged.. 40
WARWICK, R. I.—Shawomet Baptist Church damaged..... 30
SANDERSVILLE, GA.—Mill of Red Bird Lumber Co..... 40
PETERSBURG, VA.—Plant of Appomattox Box Company.... 80
HAWKINSVILLE, GA.—Several business establishments..... 50
PASSAIC, N. J.—Bldgs. in business section..... 50
SARNIA, ONT.—Laidlaw Lumber Co. mill destroyed..... 25
KANSAS CITY, MO.—Hanger of National Air Transport Co. 80
COLUMBIA, TENN.—Mill of Dimple Milling Company..... 25
STATESVILLE, N. C.—Plant of Statesville Furniture Co.... 250
BOLIVAR, PA.—Business section damaged..... 25
CHICAGO, ILL.—No. 340 West 54th Place, damaged..... 100
STOCKTON, CALIF.—Restaurant, Sutter & Weber Aves..... 50
DETROIT, MICH.—Sarbinowski Dept. Store damaged..... 80
BUTTE, MONT.—Silver Bow Block damaged..... 25
BAYONNE, N. J.—Oil tanker of British Black Sea Shipping Co. 85
WESTWOOD, CALIF.—Westwood High School destroyed..... 30
SAN FRANCISCO, CALIF.—Factory of California Tallow Co. 80
ROCHESTER, N. Y.—Business establishments, Main St..... 35
UNITY, PA.—Allegheny Co. Warehouse No. 3 damaged..... 50
JENNINGS, LA.—Castille Department Store damaged..... 60
RICHMOND, VA.—Academy of Music..... 125
CHICAGO, ILL.—169 West Lake Street..... 60
MEDIA, PA.—Delaware Co. Office Bldg. damaged..... 25
CAMBRIDGE, MASS.—Oxford Court, Mass. Ave. damaged.... 50

Week Ending March 4

NEWTON, KANS.—Building of Griffith Motor Co..... 40
KANSAS CITY, KANS.—Murphy-Russo Paint Co. Building.... 30
DRYRIDGE, KY.—Buildings in business section destroyed..... 165
KENMORE, N. Y.—Stores and offices, Kenmore Theatre block.. 100
OAKLEY, MICH.—Elevator of Oakley Farm Bureau Ass'n.. 30
HARRISBURG, PA.—Branch of Harrisburg Mfg. & Boiler Co.. 70
ALPENA, MICH.—Reynolds block, business section..... 65
BAKER, MONT.—Kierle Motor Company garage..... 40
HORNELL, N. Y.—Two business buildings, Broad St..... 25
COLUMBUS, O.—Stoneman Bldg. and adjoining property..... 175
NILES, MICH.—Niles Opera House and 3 stores..... 40
KIMBERLY, WIS.—Plant of Kimberly-Clark Paper Co..... 25
ABERDEEN, S. D.—Louis Wald Fur Store, Main St..... 25
AUBURN, N. Y.—J. C. O'Brien Department Store damage.... 40
LITTLETON, N. H.—"The Maples" summer hotel destroyed.. 35
WHEELING W. VA.—L. S. Jenkin's grocery and apartment.. 25
DRY RIDGE, KY.—Carlsbad Springs Hotel and adj. property. 300
PITTSBURGH, PA.—631 Smithfield Street damaged..... 40
WATSONVILLE, CAL.—Valley Church and adjoining buildings. 40
OCALA, FLA.—Mill of J. W. York destroyed..... 65
CICERO, ILL.—Anton Hotel, W. 22nd St., damaged..... 25
DWIGHT, N. D.—Seed stock of Crites & Forbes Seed Co..... 30
STROUDSBURG, PA.—Stroudsburg School Plant, Academy Hill. 180
NEWPORT, ARK.—Watson Bldg. and adjoining property..... 80
NEW MUNICH, MINN.—Meyer Hardware Co. and adjoining property 30
HOLLYWOOD, ARK.—Saw mill, Ellis Lumber Co..... 50
THORNWOOD, N. Y.—Shop of Universal Marble Products Co.. 60
DENVER, COLO.—Denver & Rio Grande R. R. shop..... 25
MASONTOWN, PA.—Business building and adjoining property.. 80
NEW SMYRNA, FLA.—Latham Building damaged..... 40
HEBRON, ME.—Sturtevant Home, Herbron Academy..... 80
ASHLAND, PA.—Two warehouses and adjoining property..... 25
INKSTER, N. D.—V. E. Bemis store destroyed..... 30
OVERLEA, MD.—Girls' Bldg., Maryland School for Blind..... 25
IRONTOWN, OHIO.—Spears Drug Store and adjoining establishments. 50

(Continued on page 237)

Fashionable Girls' School Destroyed in Greenwich, Conn.

Fire, believed to have been started from a defective wiring, destroyed the Ely Court School, an exclusive finishing school for girls. All of the one hundred students and members of the faculty had left for the vacation, so that outside of the owners and the caretakers, the place was untenanted. By the time that the volunteer fire department had arrived from Cos Cob, Sound Beach and South Porchester, the entire brick building was a mass of flames. A Persian rug valued at $50,000 and many art relics were destroyed, including an autograph of General Lafayette. Water had to be pumped from a lake on a nearby estate. By the time that the streams were in action, the buildings were too far gone to be saved.

Bookings of "The Fire Brigade" Increase

(*Continued from page* 230)

CITY	THEATRE	DATE
Kansas — (Continued)		
Pittsburgh	Colonial	March 21-24
Salina	Grand	March 21-24
St. Francis	Electric	April 7-8
Louisiana		
Ferriday	Melz	June 3-4
Hammond	Rialto	April 10-12
Maine		
Augusta	Opera House	May 23-24
Bangor	Opera House	May 16-18
Bath	Opera House	May 25-26
Belfast	Colonial	June 15-16
Biddeford	Central	April 4-5
Ft. Fairfield	Park	June 22
Ft. Kent	Savoy	June 20
Gardiner	OperaHouse	May 18-19
Houlton	Temple	June 20-21
Lewiston	Empire	May 9-11
Livermore Falls	Dreamland	May 16
Norway	Rex	June 1
Portland	Strand	March 21-26
Rockland	Savoy	June 20
Rumford	Opera House	May 11-12
St. Berwick	Strand	June 8
S. Paris	Strand	June 2
Waterville	Haines	May 9-10
Westbrook	Star	June 22-23
Wilton	Bijou	May 17
Maryland		
Hagerstown	Colonial	May 18-20
Massachusetts		
Boston	Bowdoin Sq.	April 18-23 changed from April 25-30
Fall River	Rialto	April 2-8
Fitchburg	Cummings	May 16-18
Greenfield	Victory	April 10-13
Greenfield	Victoria	April 10-12
Holyoke	Strand	April 10-16
Lawrence	Modern	April 11-17
Northampton	Calvin	May 9-12
Provincetown	Provincetown	April 9
S. Boston	Strand	April 30-May 3
Worcester	Polli's Plaza	March 19-25
Michigan		
Cheboyagn	Kingston	May 12-13
Dearborn	Calvin	March 28-29
Detroit	Grand	April 20-21
Detroit	Hazel Park	May 9-11
Detroit	Fork Grand	April 2-4
Detroit	Grand Riviera	March 27-April 2
Detroit	Palace	April 10-16
Detroit	Tuxedo	April 17-19
Detroit	Lincoln Sq.	April 18-20
Detroit	Alhambra	April 24-26
Detroit	Kramer	April 18-20
Detroit	Delthe	April 17-18
Detroit	East End	April 25-26
Detroit	Martha Washington	April 18-20
Detroit	Maxine	May 1-2
Grand Rapids	Alcazar	May 15-16
Grand Rapids	Creston	May 15-16
Grand Rapids	Liberty	May 15-16
Grand Rapids	Franklin	May 17-18
Grand Rapids	Madison	May 19-20
Hart	Amusu	July 31-Aug. 2
Hillsdale	Dawn	April 10-12 changed from March 10-12
Ionia	Regent	April 10-12 changed from March 10-12
Lansing	Orpheum	June 19-21
Port Huron	Regent	May 31-June 2
Minnesota		
Bemidji	Grand	April 30-May 2
Canby	Broadway	June 26-28
Duluth	Garrick	Week of March 12
Maple Lake	Rex	July 9-11
Osakis	Empress	June 2-4
Mississippi		
McComb	State	July 4-5
Starkville	Rex	May 19-20
Missouri		
Kennett	Palace	May 19-20
Kirkesville	Princess	April 18-19
N. Kansas City	Capitol	March 27-28
St. Joseph	Rivoli	March 26-April 1
St. Joseph	Rialto	April 2-4
St. Joseph	Revere	April 5-7
St. Louis	Downtown Lyric	April 3-4
Nebraska		
Blair	Home	March 15-17
Burchard	Wonderland	March 11-12
Columbus	Columbus	March 29-31
Cozad	Rialto	June 29-30
Falls City	Electric	May 2-4
Fremont	Fremont	April 19-21
Homer	Star	July 21-23
McCook	World	March 21-22
Omaha	Bensen	April 6-8
Omaha	Muse	March 30-April 1
Omaha	Mueller	April 27-29
Omaha	Circle	April 8-9
Omaha	Minne Lusa	April 6-8
Oakland	Majestic	March 16-18
Pawnee City	Linwood	March 16-18
Ravena	Pastime	March 30-31
Stanton	Rialto	April 19-20
Wisner	Royal	April 10-12
York	Sun	April 18-20
Nevada		
Reno	Majestic	March 30-April 2
New Hampshire		
Berlin	Albert	April 25-26
Charlestown	Town Hall	May 28
Claremont	Magnet	April 20-21
Concord	Star	June 6-8
Dover	Strand	May 4-5
Newport	Conneston	June 29
Portsmouth	Colonial	May 16-17
New York		
Buffalo	Columbia	April 1-2
Binghamton	Adelphia	April 14-15
Endicott	Strand	April 28-30
Franklinville	Colonial	March 30-31
Geneseo	Grand	March 9-11
North Carolina		
Chapel Hill	Pickwick	April 11-12 changed from March 21-22
High Point	Broadhurst	March 23-26
North Dakota		
Cando	Auditorium	June 24-25
Ohio		
Barberton	Park	March 10
Cambridge	Colonial	June 13-15
Canton	Loew's State	March 27
Chardon	Chardon	March 22-24
Cleveland	Rialto	April 3-9
Cincinnati	Forest	May 25-26
Cincinnati	Park Hall	May 29
Cincinnati	Mars	June 23-24
Cincinnati	Nordland Plaza	May 26-27
Cincinnati	Park	May 26-27
Clyde	Harkness	May 3-4
Columbus	Victoria	April 24-25
Columbus	Rivoli	June 19-20
Columbus	Northern	April 18-19
Columbus	State	March 22-23
Columbus	Eastern	March 20-21
Columbus	Vernon	April 3-4
Columbus	Clinton	March 20-21
Dayton	Muse Us	Sept. 15-16
Dayton	Loew's	April 16 changed from Feb. 6
Findlay	Majestic	May 2-3
Hillsboro	Palace	April 11-12
Ironton	Marlowe	April 19-21
Jefferson	Ames	May 2-3
Lima	Sigma	April 24-28
Marietta	Hippodrome	April 25-27
Middletown	Sorg's Theatre	June 16-19
New Philadelphia	Opera House	March 21-24
Norwalk	Moose	May 12-14
Orville	Grand	April 18-20
Toronto	Washington	March 21-22

When the Water Department Fails, the Fire Department Steps In

That the fire department is the first line defense for the water departments has been proven time and time again but particularly so at the recent Florida disaster. The storm disabled the water system in Hialeah, Fla., and the 750-gallon American-LaFrance pumper was used to pump water from one of the wells to the distribution system until the break in the system was repaired. The pumper worked for 154 hours continuously and pumped at a rate of from 500 to 750 galoins per minute. Upper—pumping water to the distribution system through two lines of 2½-inch hose. Lower—the pumper in action.

City	Theatre	Date
Oklahoma		
Alva	Liberty	May 23-25
Duncan	Palace	April 21-23
Newkirk	Cozy	April 13-16
Okmulgee	Community	April 22-23
Oklahoma City	Majestic	March 17-19
Ponca City	Majestic	April 13-16
Shidler	Osage	April 28-29
Tishomingo	Liberty	April 6-7
Yale	Cozy	April 17-19
Pennsylvania		
Braddock	Braddock	March 14-16
Bradford	Grand	May 9-11
Farrell	Strand	April 13-14
Kane	Temple	May 23-24
Newcastle	Regent	March 28-April 2
Oil City	Mango	April 4-6
Pen Argyle	Liberty	March 14-15
Rochester	Majestic	April 18-20
Rhode Island		
Newport	Strand	March 27-30
South Dakota		
Brookings	Ford	May 3-6
Ipswich	State	May 20-22
Mobridge	Mascot	Sept. 14-15
Texas		
Abilene	Queen	April 17-19
Amarillo	Fair Mission	March 10-12
Breckenridge	National	March 29-31
Corpus Christi	Aldine Amusu	March 25-26
Denton	Palace	March 12-18
Eastland	Connelle	April 5-6
El Paso	Palace	March 12-18
Greenville	Colonial	March 21-22
Ranger	Lamb	April 5-6
Tyler	Queen-Arcadia	April 11-12
Utah		
Ogden	Paramount	April 3-6
Salt Lake City	L. Marcus Houses	April 3-6
Vermont		
Barre	Park	May 2-3
Burlington	Majestic	April 25-26
Middlebury	Opera House	April 26-27 changed from May 2-3
Montpelier	Playhouse	May 11-12
Rutland	Strand	May 25-26
White River Junction	Lyric	April 21
Virginia		
Bristol	Columbia-Cameo	April 25-27
Washington		
Bellingham	Grand	March 17-23
Wisconsin		
Delavan	Pastime	May 4-6
Iron Mountain	Colonial	May 17-19
Madison	Madison	April 28-May 7
Madison	Star	April 28-May 7
Manitowac	Midadow	March 15-19
Milwaukee	Miller	May 16-22
Milwaukee	Savoy	May 17-19
Milwaukee	Modjeska	April 26-28
Milwaukee	Mirth	May 17-19
Milwaukee	Tower	April 26-28
Milwaukee	Tivoli	May 10-12
New London	Grand	May 16-18
Port Washington	Savoy	May 10-12
Ripon	Auditorium	April 22-24
Sault Ste. Marie	Strand	March 8-10
Stanley	Star	Aug. 8-11
Tomahawk	Lyric	May 16-17
Waupun	Waupun	March 8-10
Wyoming		
Thermopolis	Whiting	May 31-June 1

What's Burning

(*Continued from page 235*)

SYRACUSE, N. Y.—Six downtown business establishments... 200
RIVERSIDE, MICH.—Beach Grove Country Club..... 80
WILSON, N. C.—Portion of Main Bldg. Hackney Wagon Co.. 250
PAWTUCKET, R. I.—The Le Jean-Baptiste plant..... 65
MOUNTAIN GROVE, MO.—Bldg. occupied by Young Mercantile Co. 65
CHICAGO, ILL.—Plant of Morton Salt Co..... 150
TALLAHASSEE, FLA.—Three stores destroyed..... 25
GALLIPOLIS, W. VA.—Warehouse of Huntington Tobacco Co.. 70
BROOKLYN, N. Y.—Loft bldg., 127 Varet St..... 150
JERSEY CITY, N. J.—Bldg. occupied by Garfield Mill Co.. 25
MT. PLEASANT, PA.—Residence and store of H. Simon.... 45
PAWTUXET, R. I.—Hunter's Cabin owned by J. Smith.... 40
SEARSBORO, IOWA.—Several business establishments..... 40
DAVENPORT, IA.—Three barns, Iowa Soldiers' Orphans' Home 25
HINSDALE, N. Y.—Lincoln store and adj. property..... 60
TROY, N. Y.—Entire block, Broadway and 4th Sts. damaged.. 125
YOUNGSTOWN, O.—Hillman St. Christian Church destroyed.. 80
HUNTINGTON, W. VA.—Bldg. occupied by Dickinson Co.... 300
ST. LOUIS, MO.—Odeon Theatre Bldg. damaged..... 500
HIGH POINT, N. C.—Plant of Hill Veneer Co..... 180
RED BANK, N. J.—Shrewsbury River Country Club..... 40
ATHENS, TENN.—Robert E. Lee Hotel damaged..... 40
NEW ALBANY, IND.—Simon Haskell Dept. store damaged... 50
MT. PLEASANT, IA.—Spurgeon and Bee Hive stores..... 70
JERSEY CITY, N. J.—Pier K, Penna. R. R. and adj. property 800
MASONTOWN, W. VA.—Street Dept. Store..... 80

California to Limit Firemen's Hours

A bill designed to limit by state law, the hours of duty of employees and members of fire departments, is being considered by the California Legislature. It also provides methods and limits of leaves of absence and for annual vacations without loss of pay.

The bill reads as follows:

Section 1. It shall be unlawful hereafter for any commission, board, officer or other agent of any county, city and county, city, town, district or other political subdivision of the state, knowingly to require any member or employee of a paid fire department of any such county, city and county, city, town, district, or other political subdivision of the state, to work or remain on duty more than nineteen hours in any one day of twenty-four hours; provided, however, that the provisions of this section shall not apply: First—To the members of the commission or board in control of such fire department. Second—To the chief officer or other person in command of such fire department. Third—To the members of such fire department when directed by the chief officer or person in command to remain on duty during the continuance of a serious emergency. Fourth—To the members of such fire department actually on duty during the continuance of a fire which is being actually resisted by such fire department.

§ 2. Each officer, member and employee of any such fire department shall be allowed a continuous leave of absence of not less than twenty-four hours duration not less than once in each week, and shall also be allowed a vacation of not less than fifteen days duration during each year of his service. The leaves of absence and annual vacations herein granted, must be arranged by said commission, board or officer so as not to interfere with or impair the efficiency of such department. Such leaves of absence and vacations to be without loss of pay.

§ 3. All acts or parts of acts in conflict with the provisions hereof are hereby repealed.

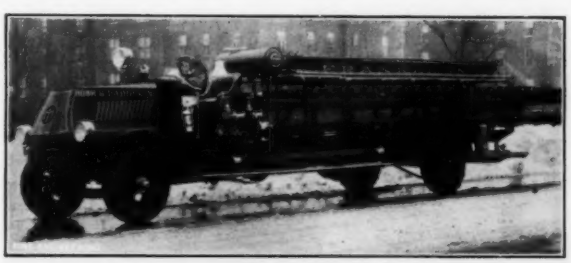
§ 4. This act shall be in force from and after the first day of January, nineteen hundred and twenty-eight.

GUY C. MACDONALD.

Salting New Hay Prevents Fire

When storing hay in barn or stack, we find it good practice to use a ten-quart pail of salt, no lumps, to each load. Scatter it thoroly, after the load has been placed in mow or stack, the same as the old method of broadcasting grain. Be sure to crush all lumps, as they will not dissolve.

This practice will not only make the hay more palatable, but it will prevent it from heating, and is good insurance against fire by spontaneous combustion.—*The Dairy Farmer.*



Combination Ladder Truck Delivered to Franklin, N. H.

A Mack combination ladder truck and pumper has been delivered to Franklin, N. H. The apparatus has a 150 h.p. motor.

Worcester, Mass., to Have New Ladder Company—A new ladder company, will be shortly created in Worcester, Mass., and housed in the new bungalow station in the Tatnuck district of the city. Money has been authorized for the purchase of a new ladder truck. Ten men and four officers will be provided for the new unit.

Box 4 Association Holds Anniversary Banquet—The Box 4 Association in Worcester, Mass., celebrated the sixth anniversary of the Knowles Building fire with a banquet and entertainment in the new fire alarm headquarters building. The speakers included Supt. Morey F. Orrell of the Worcester fire alarm system; Chief Charles L. McCarthy, Worcester; Chief Selden R. Allen of Brookline, Mass., and officers of the association. A. D. Wheeler, New England district manager of the Gamewell Company gave an interesting talk on the development of the fire alarm telegraph.

COURSE OF INSTRUCTION IN FIRE PROTECTION

AS GIVEN AT THE UNIVERSITY OF ILLINOIS

MODERN METHODS OF FIRE EXTINGUISHMENT

By HARRY K. ROGERS

Engineer, Western Actuarial Bureau, Chicago, Ill.

IN this thirtieth installment of the University of Illinois Course in Fire Prevention, Mr. Rogers gives some constructive ideas on fire-fighting, extinguishment and protection:

Training Comes Hard to Men at First

My experience is that at first firemen rather resent being forced to go out of the engine house and do certain evolutions that are tiresome and hard work, but after they have been at it a few days they come to a realization that, while the work is hard at the start, it makes the actual business of fire fighting so much easier. The balance of the scale is thrown the other way, providing your drill master is not a driver, a man that will use ordinary common sense and judgment.

Danger of Overdoing Drills and Training

I know of a case of a fire department employing about one hundred men, where the Chicago drill school methods were instituted several years ago. This town has a central engine house with seven or eight pieces of apparatus in it and I think possibly twenty-seven or twenty-eight men stationed at this central house. The drill field is located back of it. The men at headquarters drill approximately five hours a day, every day in the week except Saturday and Sunday; the outlying men get in once or twice a year for a day's schooling. In my estimation that's a poor way to conduct a fire college. These men are so sick and tired of these activities of the fire school that when they have a chance to put these things in operation at a fire they don't do it. The thing has been greatly overdone in this one city, sacrificing the work with the outlying houses and compelling this one group of men to do it over and over again until it has become a burden. I don't believe that's proper. I think ordinary common sense should guide your methods in the institution of drill schools in your departments so that the men do not get thoroughly sick and tired of it.

Evolutions Must be Adapted to Needs of Community

Learn the best ways of doing things. It teaches the proper methods of raising and lowering ladders of different types; it teaches the proper method of advancing on fires with hose streams; the proper methods of carrying hose, regardless of the location of the fire.

While I am greatly interested in the Chicago method and in my estimation the school of evolution perhaps is the best in the country, I have actively engaged in the work in the other schools and have found things in Detroit, Philadelphia and New York drill schools I like better than the methods used in Chicago, but these drill schools in your community must cover the thing in your town. I think certain things done in the New York fire college are very good for New York, but would be practically valueless in Oklahoma City. Things are done in Oklahoma City that would be of no use in New York. I don't think you can go to any drill school in the country and go home and put all those things in effect in our town. I think these various drills and evolutions should be adapted to your own community.

Life Saving and First Aid

The fourth and last division of the modern drill school is that of life saving and first aid. Every fireman owes it not only to himself, but the community he safeguards, to become as proficient in this important branch as possible, because in this hazardous business of yours you never know when an emergency is going to arise.

This in a very small measure shows the advances that have been made in the science of fire-fighting from a training school standpoint, but does not in any way show the improvements which have been made in this most interesting of all departments of civic welfare.

Importance of Ventilation

There has been a subject mentioned two or three times by speakers that could not possibly be treated effectively in one day's time, the subject of ventilation; a comparatively new science in fire fighting and a most deserving one. In ventilating certain facts should always be kept in mind, the first of which is that it is never proper to open up ventilation until you have lines available for immediate entry into the building. That is, if we have a fire we should not open that building until hose lines were laid so we could follow in immediately as soon as the gas and smoke cleared out to start the extinguishing business. That, of course, should be true only where there is not a life at stake. If lives are to be saved we should not pay attention to the extinguishing of the fire until we get the people out of the building. That's the first business of a fireman always, but in the ordinary mercantile fire don't open your house or building until you have available lines for immediate entry.

The second thing in this consideration of ventilation is selecting the proper place to ventilate. If there is a cock loft or an elevator shaft on the top of the building, that constitutes a wonderful flue which will clear the building as rapidly as possible of the gases. That's the proper place to ventilate unless this vent house or cock loft is exposed to some other building of combustible material. That should be taken into consideration. Use care and discretion in opening, but get it open as soon as possible.

An Example of Non-Ventilation

Just recently I saw a fire in a little town in Minnesota. It was a double occupancy, a fifty foot front with two storerooms on the first floor, one occupied by a millinery store and the other by a ten cent store. This was shortly before noon. When the firemen got there there was a considerable volume of smoke coming from this five and ten cent store. The fire department lined up hose, both in front and the rear of the building, and opened up without making an investigation of the fire. They did not open a transom, they did not open any of the upstairs windows and by that time it was so filled with smoke it was coming out everywhere. These lines in front washed all the stock of the five and ten cent store to the back end of the building and the fellows in the alley washed it back to the front and they washed it back and forth. In order to get water in the building they had to break some windows and that in a measure ventilated it. When the fire was extinguished we found there was a pile of burlap bags in the basement, a fire that could have been handled with a two and one-half gallon extinguisher, but they made no attempt to find where the fire was. As a result the fire damage in this building amounted to about $1.50 and the fire department's damage amounted to several thousand dollars. Open up. Get into the fire. I know an old chief that issued an order that the first person that opens up a pipe until he can see red will be fired from the department. Locate the fire and then hit it and hit it hard, as Captain Conway said earlier in this course.

(To be Continued)

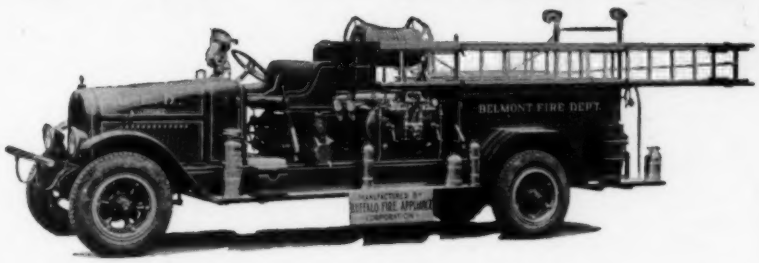
Arlington, Va., Receives New Pumper

A Buffalo triple combination pumper of 350-gallon capacity mounted on a Reo 6-cylinder chassis has been delivered to Arlington, Va. It carries two 35-gallon chemical tanks and the hose body has room for one thousand feet of hose.

Bradford Pa., Celebrates Anniversary—C. H. Henderson, chief of the fire department in Bradford, Pa., celebrated his fiftieth anniversary in the fire service. He started as torch boy and is now in charge of the department.

BUFFALO

One of the strongest proofs of the real merit of Buffalo apparatus is the fact that chiefs are constantly of their own accord writing us glowing letters of praise of their Buffalo apparatus in actual service.



Every piece of Buffalo apparatus must be right before it leaves the plant —and every piece is fully guaranteed. You can't go wrong with Buffalo apparatus.

"Built to *Your* Order" Apparatus

is Making Good Wherever Placed in Service

because every piece of apparatus is designed by our experienced fire apparatus engineers in conjunction with the local fire officials to meet the specific requirement of the particular department or municipality making the purchase—and only the highest grade materials and workmanship go into the construction.

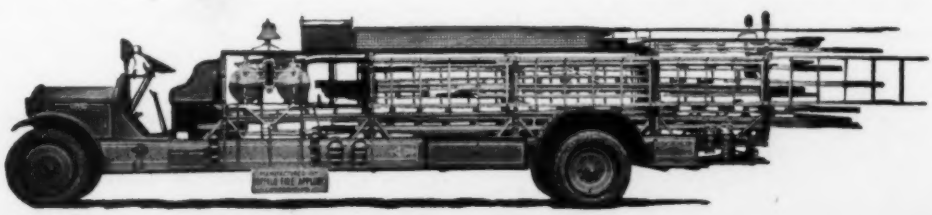
Every city, town or community selecting Buffalo apparatus is therefore certain to get dependable apparatus of just the type and size that will most effectively meet their own fire protection requirements.

Moreover, Buffalo Apparatus is economical. Our method of doing business and our large modern plant enable us to provide quality apparatus at comparatively low cost. This makes possible the immediate purchase of new apparatus with limited funds, or saves money that can be used to purchase other needed equipment or supplies.

May We Tell You More About Buffalo Apparatus and the Buffalo Plan?

BUFFALO FIRE APPLIANCE CORP.

General Office and Factory **44 Central Ave., Buffalo, N. Y.**



BUFFALO

Beat the Fire to it with an Erick Electric Siren

For **Volunteer Fire Departments** in towns of from 300 to 5,000 population, there isn't a Siren or a system in the world to equal the Erick. Night and day—year in and year out—it offers best protection to lives and property.

"The Erick Electric Siren Shrieks its call of danger to every nook and corner of your town—quick, sure and dependable."

30 Days Free Trial in Your Own Town

That's our method of proving the Erick Electric Siren to be the fire alarm you need in your town. Place it side by side with the best of all other sirens for 30 days and then be your own judge—decide for yourself whether you want to keep it or not.

"When fire is discovered, call Central from nearest phone."

The Erick is the only Siren using one big whistle on a powerful 3 and 5 h.p. motor which throws its sound evenly in all directions—louder and more penetratingly than all others. Many special features including special designed hood and screen that protects siren from rain, storm, and nesting birds.

"Central presses button connected to Siren."

Write for full information and details of liberal 30 Day Free Trial Offer

ERICK ELECTRIC SIREN CO., INC.
95 South Wabasha Street
ST. PAUL, MINN.

Cosmopolitan Protection for the Smaller Community

LAFRANCE BROCKWAY FIRE APPARATUS

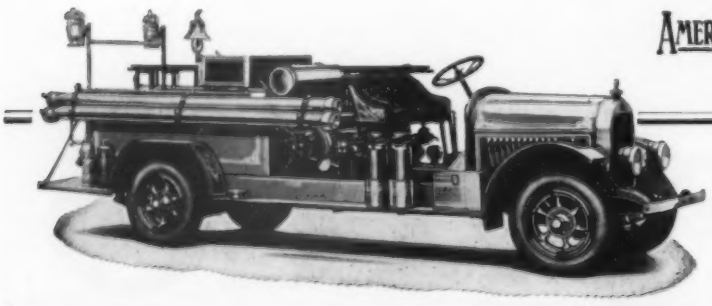
The Cosmopolitan is a combination of the speedy Brockway truck chassis mounted with American-LaFrance equipment built by the world's oldest and largest manufacturer of fire apparatus.

It brings to the smaller community the same high type of efficient, dependable fire protection enjoyed by the metropolitan centers.

Best of all, this apparatus is priced at a figure well within the budget of the smaller community.

LaFrance Brockway apparatus is obtainable in chemical cars, combination chemical and hose cars, and pumpers.

We shall be glad to send you illustrated descriptive literature upon receipt of your request.



AMERICAN-LAFRANCE FIRE ENGINE COMPANY, INC.
ELMIRA, N. Y.

BRANCHES	BRANCHES
New York	Denver
Pittsburgh	San Francisco
Boston	Minneapolis
Chicago	Kansas City, Mo.
Atlanta	Los Angeles
Dallas	Portland
Philadelphia	Baltimore
Montreal	Vancouver

Canadian Factory, Toronto, Canada

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

COOPERATION OF CITIZENS WITH THE VOLUNTEER FIREMEN

Purchase of Modern Equipment First Factor in Up-to-Date Department—Efficient Chief, Backed by Loyal Fighters, Will Afford Protection

By C. L. BIMM,
Secretary Wyanet Fire Company, Wyanet, Ill.

THE citizen speaks of "Our Fire Department," but does he really and fully understand what that means? Whether it is what is known as a paid department or a volunteer department, so far as faithfulness to duty is concerned, there is not, or should not, be any difference. In either case these men discharge their duty in extinguishing fires, without considering their own welfare in the least. They have the interest of their citizens at heart, and under all circumstances they can be depended upon to do their duty.

But in order that they may give their best efforts in this direction it is necessary that they have the hearty cooperation of the public of the city in which they live. This means that the fire department must be given the best equipment that money can purchase. Of course, this entails considerable expense, but it is the only way by which the best efficiency can be obtained. Unless the fire department has this kind of support, and is not compelled to fight fires with antiquated apparatus, it should not be subject to adverse criticism from citizens.

One Disaster Sufficient to Warn Community

One disaster resulting from a poorly equipped fire department should be sufficient warning to any community. If the citizens cannot raise sufficient funds to buy the necessary apparatus to insure safety from the ravages of fire, then some other means should be devised. One of these—and one which is often resorted to—is an appeal to the community at large. A petition may be circulated, and where this has been done the result has met with great success. Discretion of the highest order should be used when pursuing this course. Surely, no property owner could conscientiously refuse to contribute at least a small sum for such a laudable purpose, and many would not hesitate to delve deep into their pockets.

Fire means loss, and loss means insurance claims, and claims mean a high rate of insurance. And in the long run the municipality pays out more in insurance rates than it would have to do to purchase adequate equipment to prevent such loss. It should be kept in mind by everyone that insurance rates are controlled by the fire losses. If the rates are high many cannot afford to insure their property, and if fire occurs they have lost all. Even with the best of equipment some loss is certain to be incurred at every fire.

How to Melt a Troublesome Crowd

The chief, with what he has in the way of equipment, places his machines and his men in positions from which, according to his judgment, they can perform the most effective service, and if not interfered with by officious citizens, which is often the case, you can rest assured that the department will do its best to hold down the loss by either quenching the flames, or confining them to the structure where they started. One of the best antidotes in cases of this kind is the "accidental" turn of a powerful stream into the crowd. The flames may continue, but the crowd won't!

How the Department Raised Apparatus Funds

In my own town we were without proper fire equipment, and the outlook was exceedingly discouraging, as we were not in possession of funds with which to buy apparatus. Here is what we—meaning the fire department—did: We went to the village banks, borrowed enough money to get some equipment, the firemen signing the notes for the loan and bought a modern chemical truck. It hit the citizens in a generous spot, for when we went out with our subscription, they responded liberally. We told them that we were going to sell them fire protection, not only in the town, but in the country roundabout. Well, we paid off those notes, and today Wyanet has one of the best fire departments that can be found in any town in the state of Illinois of its size.

Our firemen volunteer their services. But whatever we want now, in the way of replenishing or strengthening our department, we have it for the asking. So you see that where there is cooperation between the citizens and the fire department, you can depend upon it that what is needed will be forthcoming. I offer the advice to all firemen—that they always deport themselves in a way as to command the respect of citizens.

The late Frank Thomas spent about thirty years in building up the fire department of Rockford, Ill. His slogan was "Fight a fire before it starts." Not a spot in the city or inside buildings escaped scrutiny in his campaign against fire hazards. The result is that Rockford has an extremely low fire loss each year. The local newspaper can do a great deal toward elevating the efficiency of a fire department, by sending reporters to a fire, and advising citizens as to the cause, the extent of loss, the manner in which the flames were fought, and showing wherein the department can be aided by improved facilities.

Just a few words regarding the public schools, theatres, public buildings, churches and dance halls. An alarm of fire in a public building filled with people cannot fail to create a panic of some degree. It is the duty of the fire department to see that all of these structures are equipped with exits and fire escapes, with all doors opening outward, and of the proper width; also that the aisles are kept free from obstruction at all times. All public schools should conduct fire drills, and be prepared to empty the building in record time in case of fire.

The "No Smoking" sign should be respected by all smokers. It is an established fact that the disposition of a burning cigarette or cigar by its user, has been the cause of more fires than any other agency. A little more cooperation on the part of the public will remove this evil. Every community may have a fire department of some calibre if the citizens will heartily cooperate with the young men in getting together the best apparatus possible, and then standing behind them in their efforts to afford protection from the ravages of fire which will sooner or later make an unwelcome visit to your midst.

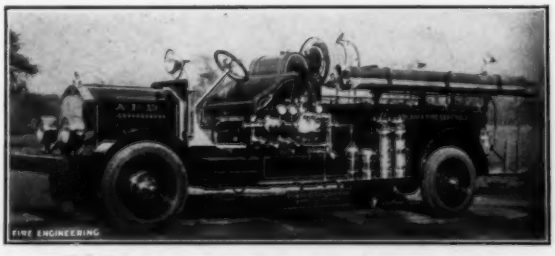
Plenty Fire-Fighters—No Apparatus

A most unusual condition exists in Urbandale, Ia., a city that may be described as having plenty of firefighters but with no fire apparatus or equipment with which the men could work. The situation is very ably presented by a correspondent to a local paper who complains of the situation.

"Shall the demon, Fire, continue its destructive way in our little city of Urbandale without more than 'it's too bad' being done? At a recent fire there were plenty of volunteer fighters but alas not even a ladder.

"True, a so-called 'fire engine' is owned by the town but at this time it is 'roosting' in a shed, minus the things which are needed to operate it. And only one or two citizens know how to run the darn thing when it is runable. God only knows what we'll do when they die with the secret of its mechanism.

"Seriously, isn't it time for us to wake up. If the present chemical is useless, it should be replaced with one that will protect our homes, our children at school—one that can be kept ready at all times and adequate building provided for housing it. The present engine, because of the lack of proper housing, cannot be filled in winter. Consequently if it were in running order, prompt service is impossible because of the time required to prepare the chemical after the alarm."



Childs Pumper Delivered to Arcadia, Ia.

A Childs pumper has been placed in service in Arcadia, Ia. The apparatus is a triple combination pumper mounted on a Childs Model 4 fire department chassis. It is equipped with a chemical tank and the usual portable extinguishers.

New Rules of the New York Fire Department

(*Continued from page 227*)

Whenever, during such a period, a platoon is granted its regular 24 hour leave, no meal leaves shall be granted the working platoon.

SEC. 240. Leaves applied for, which are not regular, special, vacation, sick, death, emergency, or for meals, may be granted by the Fire Commissioner after application has been made.

SEC. 241. Members shall return promptly at the expiration of leaves or off-tour periods. Any failure to do so shall be made the subject of a telephone report to the Chief of Battalion by commanding officers withing thirty minutes after the expiration of a leave over-stayed.

SEC. 242. When leaves without pay are granted, or when members are, upon trial, found guilty of absence without leave, proper deduction in pay shall be made on payrolls for the second half of the next month, by commanding officers.

Payrolls with checks unpaid, or incorrectly drawn, shall be returned to the Division of Audit and Accounts, Fire Headquarters, with memorandum.

When members are found guilty upon charges of intoxication, commanding officers shall make deductions on payrolls for the second half, for the period of time the intoxication rendered the guilty member unfit for duty. The period of time shall be fixed by the Medical Officer concerned in the case.

When such deductions are made, a memorandum giving full details shall be pinned to the payrolls when forwarded.

SEC. 243. Members who fail to report for duty, due to arrest or imprisonment, shall be reported as absent without leave.

SEC. 244. Any member who may, before the expiration of a leave of absence, or an off-tour period, return to quarters and report for duty to the commanding officer, shall be deemed to have abandoned the unexpired portion of his leave or off-tour period, and may be regarded as present for duty.

(See reports—Chief Officers returning from sick leave, detailed or detached service of more than 24 hours' duration.)

SEC. 245. When applications for leaves of absence are made they shall contain detailed information concerning the purposes for which the leaves are requested.

The National Standard

SEC. 246. The National Standard shall be displayed at the peak of the pole at Company quarters from sunrise to sunset on all days of the year, except Sunday. When, however, the following fall on Sunday, it shall also be displayed: January 1st, February 12 and 22d, June 14th, July 4th, October 12, December 25th, and on such other days as may be designated.

It shall be displayed at half-mast until noon on May 30 (at the peak for the remainder of the day), and upon receipt of official notice of the death of an officer holding a distinguished position in the National, State or City Government; the Fire Commissioner, an officer of the Department, or any member of the uniformed force who may lose his life in the discharge of duty. It shall be displayed daily in that position until sunset on the day of the funeral of those designated above.

When notified of the death from natural causes of any member of the uniformed force below the rank of Lieutenant, the company to which he was assigned shall display the National Standard at half-mast until sunset on the day of the funeral.

Except when otherwise directed, officially, the National Standard shall not be displayed under any other circumstances, nor shall it be loaned, or permitted to fly to the breeze after sunset.

SEC 247. Whenever the National Standard is carried in Departmental formations, a color guard shall be provided.

SEC. 248. Companies in the Marine Division shall salute all vessels of the United States Navy by dipping the ensign when such vessels are passing fireboats at berths.

(See courtesies and salutes).

(*To be continued*)

Haley Nozzle Now Made in Attleboro

The L. P. Brown Machine and Tool Company of Attleboro, Mass., has acquired the sole right from Thomas Haley, inventor, to manufacture the Haley nozzle, now being marketed.

This nozzle was invented and first made by Mr. Haley in Charlestown in 1900. Since that time over two thousand of these nozzles have been sold. In 1924, several improvements were made to the original patents. The chief advantages of this nozzle are that the stream can be adjusted to deliver a large or small volume of water. It can also be used as a shut-off nozzle.

Chief Dahill Has New Smoke Ejector

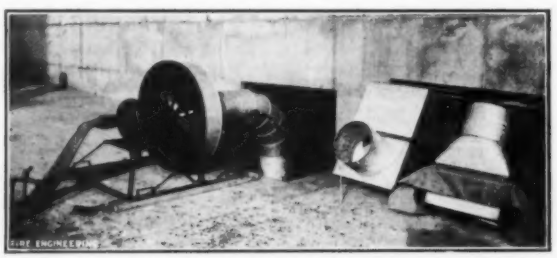
Chief Edward F. Dahill, of New Bedford, Mass., has invented a smoke ejecting machine that is somewhat similar in principle to the smoke eating appliance recently developed by Chief C. W. Ringer, of Minneapolis, Minn. The ejector of Chief Dahill operates on hydraulic pressure instead of being connected with an automobile. It revolves a large ventilating fan and can be used to suck out smoke and gases from cellars or other parts of burning buildings.

Under direction of Chief Dahill the mechanics in the New Bedford Fire Department constructed a portable device consisting of a water motor attached to a 30-inch fan which draws smoke through a 12-inch pipe and liberates it in the open. The ejector is inserted in a cellar window or any opening or trap door. The motor is operated by the force of water through ordinary fire hose connected to it. The 12-inch outlet pipe is constructed of swivel elbows making it flexible.

A test of the device was held in the cellar of the fire department repair shop in New Bedford with highly satisfactory results. A fire was started in a pile of feathers, burlap, and other smoke producing ingredients and when the cellar had become heavily charged with smoke the ejector was placed in operation.

After one minute and three quarters it was reported that the cellar was clear enough for firemen to walk through without difficulty and after three minutes of operations the cellar was entirely clear of smoke.

Spray of water is kept playing upon the revolving and working parts of the blower which prevents overheating and quenches any flame that may be sucked out by the fan. The fan in the



Smoke Ejector Designed by Chief Dahill of New Bedford.

blower is capable of making 1000 revolutions per minute. Captain James H. Downey, master mechanic of the New Bedford Fire Department, had the machine constructed from plans of Chief Dahill. The ejector is demountable and carried on a truck. It may be easily taken to any place or portion of a building from which it is desired to have smoke and gas removed to enable the hosemen to enter.

At the last meeting of the Fire Chiefs' Club of Massachusetts held in Boston at the Elks' Club, Chief Dahill showed some pictures of his device to a number of the chiefs present. They were all interested and expressed a desire to see the ejector in operation.

HARRY BELKNAP.

Gillooly Now With Sterling Siren

The Sterling Siren Fire Alarm Company of Rochester, N. Y., announce the appointment of Frank Gillooly, formerly with the Federal Electric Company, as sales engineer, with headquarters at 565 W. 181st St., in New York City.

Mr. Gillooly will handle the sales of the Sterling sirens and the greater part of his time will be spent in building up a sales organization trained in the sales and installations of the Sterling code sirens and fire alarm systems.

Earthquake in Mexicali Nearly Causes Fire—Serious fire in Mexicali was averted through the assistance given by Chief J. Aguilar Robles of Calexico, Cal., who rushed a 750-gallon pumper to the scene. A new pumper was rushed to the distressed city to cope with whatever emergencies that may have developed.

Many Boxes Pulled for Lawrence, Mass., Fire—A good example of how one loses all power of reason at a fire was illustrated at a $100,000 fire in Lawrence, Mass. People who saw the glare of the fire rushed to the nearest fire alarm box to send the alarm. In all twelve fire alarm boxes were pulled. In addition, some one rushed into a nearby theatre and shouted fire. The manager stepped on the stage and succeeded in stopping the incipient panic.

DONTFEAR

SMOKE AND FUME RESPIRATOR

Firemen who enter buildings filled with smoke-fumes and poisonous gases find the "Dontfear" respirator an absolute protection. In fact, no fireman should enter any building without a "Dontfear" ready for use.

Factory
386 JAY STREET,
Opposite Fire Headquarters,
BROOKLYN, N. Y.

This respirator is always ready for use. Hang around neck before putting on helmet, slip over nose and mouth when necessary. Greatest invention ever perfected for firemen.

Price, five dollars.

With airtight goggles (as shown) and five extra canisters, seven dollars and a half. Canisters good until used.

All rights protected.

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ADDRESS COMMUNICATIONS TO STATION G, BOX 168, NEW YORK CITY

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Worcester Fire Alarm Signals

Nothing is more important in fire service than the alarm. Protect yourself by taking advantage of the experience of the oldest fire alarm manufacturing specialists.

The Worcester Fire Alarm Signal is made to meet your requirements, either steam or air operated. Write for catalog R-51.

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WORCESTER, MASS.

New York Office: 50 Church St.
Philadelphia Office: 411 Bulletin Bldg.

B & M SIREN

Did You Hear Our Sirens While You Were in New Orleans?

You could not have helped hearing them. Fire Chief Evans' car had one on, the Ahrens-Fox Aerial Ladder had one on their exhibit car and have made the B & M Siren standard equipment on their apparatus. The American-LaFrance Fire Engine Company had a B & M on their exhibit car; our own demonstrator was there, and I know that you heard the Sirens in the parade. We blew them steadily for one and a half hours without any intermission. The B & M is the only siren today that you can blow for that length of time. Why? Because it is mechanically driven.

Write for complete information. We gladly send B & M Sirens to any city on approval, transportation prepaid.

B & M Siren Manufacturing Co.

Lester H. Miles, Owner

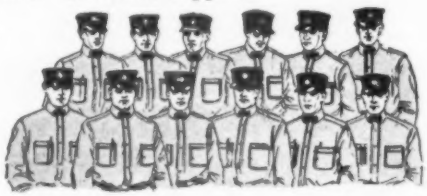
931 So. Main St. Los Angeles, Calif.

?

IS THE SHIRT PART of the UNIFORM

Sometimes you wouldn't think so. For instance, the twelve men pictured below are all members of the same company in the same city in the same country. They're supposed to be uniform; they are—from the ears up.

Now take the same twelve men and put them into the same style and pattern of shirt. See what happens.



You ought to be convinced now that the shirt *is* really part of the uniform, and a very important part. Now let us show you how to buy uniform shirts.

FOR BETTER APPEARANCE FOR ABSOLUTE UNIFORMITY

First, specify one style of shirt for entire department. The Signal two-collar shirt is the one to specify because it's dressy, long-wearing, practical, and wash proof. This style is now regulation in several American cities, and, if your department is not wearing it, you ought to find out more about it. Write us for particulars.

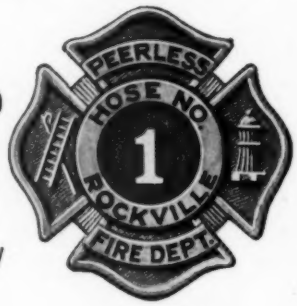
SIGNAL SHIRT COMPANY
M1 RACINE, WISCONSIN

Signal

BADGES
of Every Description

QUALITY GUARANTEED

Right Prices
Prompt Delivery



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"ROSS" HELMET

OUR LATEST CATALOGUE AND PRICE LIST WILL GLADLY BE SENT ON REQUEST.

EVERSON-ROSS CO.
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The Burrell All Service GAS MASK

The Standard for the Fire Fighters of America

The Burrell All Service Gas Mask is the only mask approved by the United States Government for complete protection against Carbon Monoxide, Ammonia and every known poisonous gas. Write for Bulletin F-3.

Mine Safety Appliances Co.
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INDUSTRIAL PLANT PROTECTION

How Can Costly Fires Be Avoided*

By K. D. HAMILTON, Plant Engineer, and R. S. MOULTON, Assistant Secretary, National Fire Protection Association

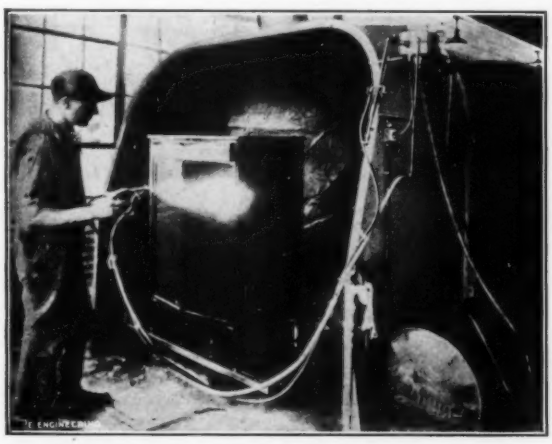
THE following is a continuation of the article that appeared in the February 9 issue:

The Importance of the Maintenance Department

The maintenance department is an important link in the fire-fighting organization because its men are most familiar with the various service systems in the plant. In case of fire, for instance, the gas supply should be shut off, exhaust fans should be stopped, electric motor switches should be thrown out, and the entire sprinkler system should be checked up to see that it is operating perfectly. As soon as possible after the fire is mastered, fused sprinklers should be replaced and the fire-protection system should be put in working order. Many cases are on record where it was supposed the fire was out but where before protection was restored the fire rekindled and did much damage. Later, the maintenance department can clean up.

The Watchman's Part in Fire-Protection

Each watchman should be given instruction books and several lectures on the location and operation of fire valves. He should be familiar with the fire system in general. Especially he should know how to turn off the water and how to drain the system in case of water damage. He should be familiar with the location of fire-extinguishers, hose, hose wagons, fire-alarms, valves, pumps, and similar equipment. Many times a watchman has been able to save a serious fire by quick action in operating a hand fire-extinguisher.



Removing the Dangerous Fumes

An exhaust cabinet in the finishing room at the Simmons Company, Kenosha, Wis. Wherever volatile solvents are used, special care must be taken to prevent the collection of explosive fumes.

Some companies insist that all watchmen carry a small fire-extinguisher at their belt at all times. This may seem like an unnecessary protection, but it has saved some plants from serious difficulties.

Cooperation with the municipal fire department is one of the most important functions of any private-plant organization. The local fire department should be made familiar with the location of all valves and fire-fighting equipment. It should understand the organization which has been built up in the plant, together with its personnel. The private fire chief should immediately turn over the entire responsibility as soon as the municipal chief arrives on the ground. The municipal chief is the man of wider experience.

The settlement of claims after fire and water damage often involves serious disputes, especially where there are many policies involved and where various companies are interested in the risk. Where an accurate inventory can be maintained and reasonable figures can be established as to the loss, the settlement is comparatively easy. There have been cases, however, where it has been impossible to determine a loss without considerable litigation and investigation. The placing of the responsibility is one which ferquently cannot be determined.

In closing, let me emphasize again that owners who are unfortunate enough to have fires do not compensate themselves by the receipt of full insurance. They have lost their customers, equipment, records, and labor. They must start all over again to reestablish their businesses.

Although the cost of adequate fire protection may seem large, it is a small item compared with a fire loss.

*Reprinted from "Factory."

Acid Placed in Pumper's Gasoline Tank

Spurred on by some motive which the investigation committee were unable to discover, members of Engine Co. 27 of Boston located in the Charlestown section, placed sulphuric acid in the gasoline tank of the pumper. Commissioner Hultman, as a result of this, has transferred the firemen of this company to stations distant from their homes as punishment. No blame could be attached to the officers so they were left at their old command.

The investigating committee believe that some members of the company were stationed as watchmen while others made the trip back and forth from the place where the acid was stored to the apparatus floor. As the container used to convey the acid held only a pint and a half, several trips were necessary to fill the gasoline tank with two gallons of the acid. It is the belief of some that an attempt was made to damage the pumper so that it would not be able to respond to a fire.

The firemen refused to divulge the names of those who were responsible for the crime, and the police who had charge of the investigation were not successful in obtaining information.

Commissioner Hultman of Boston said, "The crime is one of the most atrocious in the history of the Boston Fire Department and it was only on account of the efficiency of the officers of this company that it was discovered before the apparatus was called on to respond to a fire. In addition to the crime, the honor of the department has been publicly disgraced.

The order transferring the thirteen members of this company caused the transfer of sixty-seven men to new assignments.

Plan Third Illinois Short Fire Course

Having held two successful short courses in the art of fire prevention and control, the University of Illinois at Urbana is planning to hold the third short course at the college on June 21–24.

This course is planned to be a training school where those interested in fire prevention, control and extinguishment can learn methods and ask questions. The program is planned to be of interest to anyone who is concerned with fire prevention, control and extinguishment. There are no fees of any kind for this course.

Information about this course may be obtained by addressing C. E. Palmer, 401 Engineering Hall, University of Illinois, Urbana, Champaign, Ill., or John G. Gamber, state fire marshal, Springfield, Ill.

The course will cover rescue work, ventilation, first aid for injuries, ladder work, hose work on ladders, the use of equipment on trucks, first aid extinguishers, fires from electric currents, gas masks and rescuscitation, sprinkler systems, pumpers and fire streams.

Radio Aerial Cause for Fire—An outdoor aerial in Pine Bluff, Ark., fell upon an electric light wire and caused a fire that required the fire department to extinguish.

Trap Doors Must Be Closed on N. Y. Stage—In an order of the New York fire department, the firemen detailed to theatre inspection work must make sure that the trap door on the stage is closed, or if there is an elevator there, the elevator must be flush with the stage door before he leaves, after the performance. This is to retard the upward spread of flames in case of a fire below the stage, and of safeguarding the life of the firemen who are called to fight the fire.

CONVENTION DATES

May or June—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. 22nd Annual Convention, Darlington, S. C., date at pleasure of Convention City. Secretary, R. S. Hood, Sumter, S. C.

May 3-4—SOUTH DAKOTA ASSOCIATION OF FIRE CHIEFS. Annual Convention, Brookings, S. Dak. Secretary, Chief C. M. Johnson, Rapid City, S. Dak.

May 9-12—NATIONAL FIRE PROTECTION ASSOCIATION. 31st Annual Meeting, Chicago, Ill. Secretary, Franklin H. Wentworth, 40 Central St., Boston (9) Mass.

June 8—NORTHWEST ARKANSAS FIREMEN'S ASSOCIATION. Annual Convention, Springdale, Ark. Secretary-Treas., F. M. Brock, Bentonville, Ark.

June 14-16—TEXAS STATE FIREMEN'S ASSOCIATION. Annual Convention, San Antonio, Tex. Secretary. Olin Culbertson, Hillsboro, Tex.

June 16-18—PROVINCIAL FEDERATION OF ONTARIO FIREFIGHTERS. Annual Convention, Windsor, Ont., Can. Secretary-Treasurer, David H. Lamb, 132 Bellevue Ave. (2) Toronto.

June 17-19—WISCONSIN STATE FIREMEN'S ASSOCIATION. 40th Annual Convention, Baraboo, Wis. Secretary, E. Philip Mueller, Jefferson, Wis.; State Organizer, Chief H. H. Niemeyer, Portage, Wis.

June 17-20—SIX COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Sunbury, Pa.

June 21-23—FLORIDA STATE FIREMEN'S ASSOCIATION. Annual Convention, Hollywood, Fla. Secretary, Chief F. C. Pfaender, Winter Haven, Fla.

June 21-23—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 38th Annual Convention, Poughkeepsie, N. Y. Secretary, Chief Chris W. Noll, Fire Department, Poughkeepsie.

June 21-23—KENTUCKY STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATION. 9th Annual Convention, Owensboro, Ky. Secretary-Treasurer, Capt. S. G. Render, 303 Speed Bldg., Louisville, Ky.

June 21-23—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 5th Annual Convention, Congress Hotel, Portland, Me. Secretary, Chief John W. O'Hearn, Watertown, Mass. For reservations address Geo. F. Cobb, Traffic Manager, 774 Albany Street, Boston, Mass.

June 21-24—THIRD SHORT COURSE IN FIRE PREVENTION. To be held at University of Illinois, Urbana. Address, C. E. Palmer, 401 Engineering Hall, University of Illinois, or State Fire Marshal John G. Gamber, Springfield, Ill.

June 27-29—MICHIGAN STATE FIRE CHIEFS' ASSOCIATION. Annual Convention, Bay City, Mich.

July 12-14—MICHIGAN STATE FIREMEN'S ASSOCIATION. 53rd Annual Convention, Lansing, Mich. Secretary, H. L. Williams, Luddington, Mich.

July 25-28—DOMINION ASSOCIATION OF FIRE CHIEFS. 19th Annual Convention, Hull, Quebec. Secretary, Chief James Armstrong, Kingston, Ont.

August—IDAHO STATE FIREMEN'S ASSOCIATION. Annual Convention, Wallace, Idaho, tentative date, last week of August, to be decided later. Secretary, Willard Adams, Rigby, Idaho.

Aug. 1-2—WASHINGTON STATE FIRE CHIEFS' ASSOCIATION. Annual Convention, Chehalis, Wash.

Aug. 4-6—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 34th Annual Convention, Portland, Ore. Secretary, State Fire Marshal Jay W. Stevens, 1014 Merchants' Exchange Bldg., San Francisco, Cal.

Aug. 7-8—OREGON STATE FIRE CHIEFS' ASSOCIATION. 8th Annual Convention, Portland, Ore. Secretary, Thomas Coates, Tillamook, Ore.

Aug. 9-11—CUMBERLAND VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 26th Annual Convention, Western Port, Md. Secretary, C. L. Jacobs, Waynesboro, Pa.

Aug. 9-12—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 55th Annual Convention, Portland, Ore. Secretary, Chief J. J. Mulcahey, Yonkers, N. Y.; Executive Secretary, State Fire Marshal Jay W. Stevens, Merchants' Exchange Bldg., San Francisco, Cal.; Chairman, Exhibit Committee, Chief Albert Herring, Murphysboro, Ill.

Aug. 14-16—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual Convention, Elmira, N. Y. Secretary-Treasurer, Frank A. Emden, 1200 Lenox Avenue, Utica, N. Y.

Aug. 16-19—FIREMEN'S ASSOCIATION, STATE OF NEW YORK, and WESTERN NEW YORK VOL. FIREMEN'S ASSOCIATION. Joint convention of both associations, Niagara Falls, N. Y. Secretary, State Association, Fred A. Davis, Fort Edward, N. Y.; Secretary, Western N. Y. Association, Henry A. Clark, 21 Porter Avenue, Batavia, N. Y.

Aug. 24-26—VIRGINIA STATE FIREMEN'S ASSOCIATION. 41st Annual Convention and tournament, Alexandria, Va. Secretary, E. K. Landis, Pulaski, Va.

Aug. 24-27—CALIFORNIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Stockton, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth Street, San Diego, Cal.

Sept. 7—DELAWARE STATE FIREMEN'S ASSOCIATION. 7th Annual Conference, Rehoboth Beach, Del. Secretary, Sam H. Carson, Dover, Del.

Sept. 7-8—MISSOURI STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Kirksville, Mo. Secretary, District Chief J. T. Lynch, Kansas City, Mo.

Sept. 7-8—MISSOURI ASSOCIATION OF FIRE FIGHTERS, 2d Annual Convention, Kirksville, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

Sept. 12-14—ARKANSAS STATE FIREMEN'S ASSOCIATION. Annual Convention, Russellville, Ark. Secretary, H. D. Compton, Little Dock, Ark.

Sept. 13-15—ILLINOIS FIREMEN'S ASSOCIATION. 40th Annual Convention, Jacksonville, Ill. Secretary, Roy A. Alsip, Champaign, Ill.

Sept. 20-21—IOWA STATE FIREMEN'S ASSOCIATION. 50th Annual Convention and Anniversary, Emmetsburg, Ia. Secretary, E. E. Parsons, Marion, Ia.

Sept. 22-24—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 50th Annual Convention and Anniversary, Atlantic City, N. J. Secretary, William Exall, Chamber of Commerce Bldg., Newark, N. J.

Sept. 23—NEW JERSEY STATE FIRE CHIEFS' ASSOCIATION. Annual Meeting, Atlantic City, N. J. Secretary, Fred A. Trowbridge, 17 South Street, Morristown, N. J.

Oct. 4-6—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Shamokin, Pa. Secretary, Charles F. Clark, 411 Bellevue Avenue, Wayne, Pa.

Oct. 17-19—KANSAS STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATIONS. 11th and 40th Annual Conventions, Kansas City, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Ex-Chief Bundy of Watertown, Dead

H. C. Bundy, formerly chief of the fire department in Watertown, N. Y., and former superintendent of the fire alarm system died at his home at the age of fifty-nine. Death followed an illness of several months.

The Late Ex-Chief H. C. Bundy, Watertown, N. Y.

Born in Black River, he came to Watertown while a young man. He learned the blacksmith trade and was employed at the New York Air Brake Company. Later he became a machinist.

Mr. Bundy was in the fire service for thirty-one years—first as a volunteer fireman and finally as the head of the department. He joined the volunteers in 1889. In 1896 when a paid company of four men was formed as an auxiliary to the volunteers, Bundy was selected as its foreman. The volunteer organization was disbanded in 1900 and he was promoted to assistant chief engineer. He was in charge of the fire alarm system with the rating of fire alarm superintendent and electrician. For the next thirteen years, he often commanded the department in the absence of Chief Morrison.

Following the death of Chief Morrison in 1913, he was placed in charge. He held this office until June, 1920, when he applied to the city council for retirement. He suffered from an eye infection which developed as the result of a fire, and continued fire service appeared to aggravate the condition.

Two years later in June, 1922, he became a member of the firm of Bundy-Hale, fire engineers and fire apparatus agents. Mr. Bundy is credited with a number of inventions to improve the fire alarm system, and he was active in the International Association of Municipal Electricians.

Chief Bundy is survived by a sister and a brother. He was a member of the Masons, B. P. O. Elks, Knights of Pythias and Red Men.

Capt. McNeill of Fayetteville Buried

All Fayetteville, and delegations from various cities in North Carolina assembled at the bier to pay the last respects to Capt. James D. McNeill, fireman and organizer of the South Carolina Firemen's Association, who was buried on February 11.

At the request of the mayor, all business stopped during the funeral rites. The body was borne to its final resting place on a piece of apparatus that was named in his honor. As the funeral procession wended its way to the cemetery, sirens moaned and a bell in the city tolled slowly.

The honorary pall bearers were selected from fire department officers prominent in North Carolina. More than two hundred such men were in line. The Fayetteville lodge of B. P. O. Elks and members of the fire department attended in a body.

Hundreds who failed to gain admittance to the church went to the cemetery to witness the final services. It was one of the largest funerals in the history of the city. The newly made grave was heaped high with floral tributes nor was the grave of his wife who died earlier forgotten. Many floral tributes were placed on her resting place. Thus did Fayetteville and North Carolina honor one of her noted fire-fighters.

Many Brothers in Belmont, Mass., Department—Fire-fighting in Belmont, Mass., has developed into a sort of family affair. Of the twenty-six members, there are five sets of brothers.

A Nation-Wide Service for Better Protection Against Fire Loss and Water Damage

PROTECTION A.D.T. SERVICES

The remarkably efficient A. D. T. System of Central Station Night Watch and Fire Alarm Service has played a large part in helping to cut down the fire loss of the country; and the A. D. T. System of Sprinkler Supervisory Service has been instrumental in saving millions of dollars in water damage.

An Invaluable Service

It is generally known that water damage in sprinklered premises is considerably greater than fire damage, and it is a fact that in a great majority of sprinklered equipments no one on the premises knows how to shut off the water. Hence, the great importance and value of our Supervisory Service in not only recording water flows, but immediately sending representatives who know how to stop them.

Over $20,000,000,000

worth of property throughout the country is protected by A. D. T. services, and fire officials in cities everywhere are finding A. D. T. cooperation an invaluable aid in their work.

Send for Complete Information!
Controlled Companies

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ALUMINUM
Fire Alarm Boxes

We originated and were first to use aluminum fire alarm cabinets —now conceded everywhere to be the best. They can not rust or corrode, are strong yet light in weight.

Adequate fire protection demands reliable fire alarm signal equipment. H-S fire alarm boxes can be absolutely depended upon to operate perfectly every time.

Made by specialists in the design and manufacture of fire alarm signal equipment. Write for bulletins.

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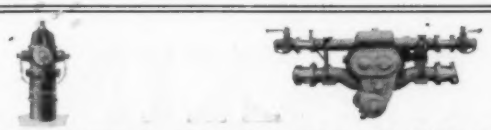
DEPT. G., MOLINE, ILLINOIS
Manufacturers
Traffic Signal Equipment — Fire Alarm and Police
Magnetic Sign Flashers — Signal Equipment
Complete Fire Signalling Equipment for Municipalities. Complete Installations



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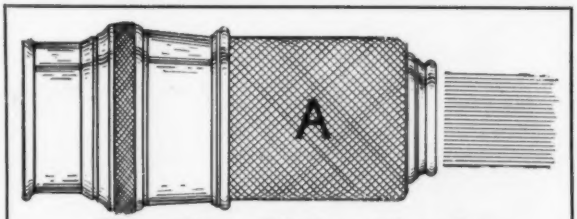
Agents in Principal Cities

WATEROUS FIRE ENGINE WORKS
INCORPORATED
St. Paul, Minnesota



The New Haley Nozzle

This improved controlling and shut-off nozzle will increase or decrease the size of stream under any pressure, from ¼" to 1¼", by simply turning sleeve. It is also a perfect shut-off, and so gradual as to eliminate water hammer.

Every fire department should investigate. Write for prices and full information.

L. P. Brown Machine & Tool Co.
Attleboro, Mass.

LARKIN Shut-off Nozzles

Over 2000 Fire Departments
have 15,000 Larkin Shut-off Nozzles in service. They have a successful record that is not exceeded by any article used in the fire service. Specify and insist upon them in buying new apparatus.

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The LARKIN Mfg. Co.
Dayton, Ohio

High Grade Fire Dept. Supplies of All Kinds

Eastman Improved Platforms and Holders

Write for Catalogue

are indispensable where high pressure service is required. With Eastman equipment any size streams can be easily handled by one man.

Eastman Nozzles and DeLuge Sets

are designed by engineers who for over thirty years have specialized in equipment for producing fire-fighting streams that are unsurpassed for solidarity, distance and effectiveness.

Samuel Eastman Co.,
Concord, N. H.

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Siren with Storm Hood

1. Double-tone, and of greatest carrying power.
2. Ball bearings throughout.
3. Accurately machined and balanced.

30 Days' Free Trial

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YOU will be intensely interested in this booklet. It contains a specific message every citizen—especially every city official should read. We have a limited supply of these booklets. If you will send us your name and address, we will be glad to send you a copy.

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have all the good points.

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- *Strong, heavy duck and lapped seams*
- *An absolutely waterproof double coating of a high grade, long life, rubber compound*

Many large Protective Departments use them

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Founded 1824 by Jacob Reed

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Thoroughly tailored of especially selected fabrics. Uniforms that look well, wear well and that will give entirely satisfactory service.

Reed's Uniforms are most economical because they represent full value for the amount expended.

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Firemen's Uniforms has been proven by thousands of firemen. Catalog F501 will tell you all about them.

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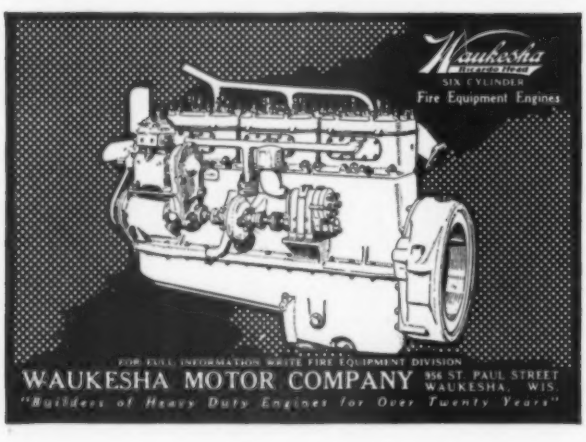
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Fire Equipment Engines
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Uniform

you always get correct tailoring, dependable quality, reliable workmanship, at the lowest prices consistent with values.

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Write giving Number of Outfits desired and color Cloth preferred.

HENDERSON & CO.
11th & Race Sts., Philadelphia, Pa.

PROPOSED IMPROVEMENTS

Rodeo, Contra Costa Co., Calif.—Construction work to begin soon on a new fire house here. A. F. Gonyer, Chief.

Ceres, Stanislaus Co., Calif.—This place to have a fire siren and boxes are to be placed at different places about town.

Hollywood, Los Angeles Co., Calif.—New fire station to be erected here.

Klemme, Hancock Co., Iowa.—Fire department raising funds for the purchase of a siren to be placed on the fire engine.

New Orleans, Orleans Co., La.—In his annual report Chief John M. Evans, Fire Dept., recommended the erection of 6 new fire stations in various sections of the city.

Sebastopol, Sonoma Co., Calif.—Board of trustees announced that a bond election is to be called in the future to purchase fire apparatus.

Morrison, Whiteside Co., Ill.—An election is to be held on March 3 to vote on an issue of fire department bonds to the amount of $15,000.

Needham, Norfolk Co., Mass.—Plans are being made for the installation of a new fire alarm system here.

Athol, Worcester Co., Mass.—To purchase a triple combination car at cost of $8,750 in the near future.

Anoka, Anoka Co., Minn.—City Commission voted against the purchase of a pumper for the fire department.

Reno, Washee Co., Nev.—The Douglas County Commissioners are contemplating the purchase of a new fire engine.

Riverton, Burlington Co., N. J.—Ordinance passed first reading for the purchase of a new piece of apparatus for the fire department.

Pennsgrove, Salem Co., N. J.—An appropriation of $10,000 has been authorized by the Borough Council for the purchase of additional fire equipment. The borough proposes to buy an additional 600 gal. pumper equipped with a booster tank, hose carrier and extension ladder.

Ellisburg (Mail Camden), Camden Co., N. J.—A new fire company was organized in Delaware township, at a meeting of residents of Eriton, a new community along the Marlton pipe near Kings Highway, Ellisburg. Funds being raised for purchase of apparatus and erection of fire station.

Merchantville, Camden Co., N. J.—Borough Council has introduced an ordinance which provides for the purchase of two pieces of fire apparatus for the Niagara Fire Co. Provisions of the ordinance authorize the expenditure of $14,000 for the equipment. A combination chemical and hose car and a combination pumper and hose car are to be purchased.

Nanticoke, Luzerne Co., Pa.—City Council planning the purchase of a new pumper for the fire department at cost of $14,000 or more.

Beloit, Rock Co., Wis.—Ordinance being prepared calling for a bond issue to finance purchase of fire equipment for South Beloit to be voted upon by city at April election.

Salem, Rockingham Co., N. H.—Plans are being made for the purchase of a combination ladder, hose and chemical truck or a pumper to be placed in the fire house at Salem depot.

Paterson, Passaic Co., N. J.—In a report to the Board of Councilmen, Max Sinn, Chief of Fire Dept., recommends the installation of a new fire alarm system.

Ausable Forks, Essex Co., N. Y.—As a result of several serious fires it is expected that this town and Elizabethtown, Keeseville, and Dannemore will purchase fire apparatus.

Canton, St. Lawrence Co., N. Y.—To raise funds for the purchase of a ladder truck and equipment for the fire department.

Springfield, Clark Co., Ohio—Appointment of 12 additional firemen and the purchase of one hose and pumping engine was recommended by Samuel F. Hunter in his annual report.

St. Petersburg, Pinellas Co., Fla.—To secure funds for the erection of 2 new fire stations. J. T. McNulty, Chief of Fire Dept.

Roanoke, Roanoke Co., Va.—Chief C. C. Meador, Chief of Fire Dept., recommended in his annual report that a new fire station be erected and fully equipped to afford protection for the South Roanoke addition and that provisions be made for the erection and equipping of an engine company in the extreme northwest section of the city.

Madison, Dane Co., Wis.—Bids are being received for a fire engine to replace the one at No. 3 fire station.

Red Creek, Wayne Co., N. Y.—Considering the erection of a new fire station.

Convoy, Van Wort Co., Ohio—New fire company to be organized in this town.

Jackson, Jackson Co., Ohio—A new Ahrens-Fox 800 gal. pumper has been purchased for the fire department.

Avis, Clinton Co., Pa.—Town purchased a Seagrave truck for the fire department at cost of $8,750.

West Union, Doddridge Co., W. Va.—Contemplating the purchase of a chemical truck for the fire department. D. J. Cunningham, Mayor.

Wausaukee, Marinette Co., Wis.—It is being urged that fire apparatus here be motorized.

Denver, Denver Co., Colo.—Plans have been drawn for the installation of a new $250,000 fire alarm system. Reuben W. Hershey, Mgr. of Safety and Excise.

Davis, Stephenson Co., Ill.—Village Board purchased a Prospect triple combination car for the fire department here.

When
In the Market

for equipment or supplies make your wants known through FIRE ENGINEERING. More bidders mean more competition and better satisfaction.

Position Wanted as Fireman

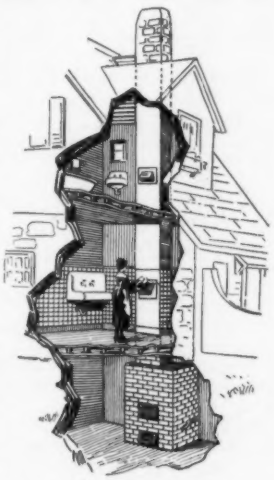
Man with experience as fireman desires position in any city or growing town. Over ten years experience of practical fire fighting, serving as Captain of an Engine Company five years also as Secretary of a Department five years, alert, young and energetic, can give the best of references. Apply Box 138, % FIRE ENGINEERING, 225 W. 34th St., New York City. 3-9

Refuse Burner Removes Rubbish

The Kernerator, a product of the Kerner Incinerator Company of Milwaukee, has been designed to take care of the rubbish problem of apartment houses and dwellings.

In the kitchen of each of the apartments is a small iron door near the baseboard which connects by means of a flue to the incinerator in the basement. Whenever the housewife has some sort of refuse, tin cans, and so forth, she throws it down this chute. When the incinerator is almost full, the janitor ignites the mass, and it is claimed, that no further attention is necessary.

The grates in the incinerating chamber are so arranged as to insure a minimum amount of gases or smoke during the burnings. At the side of the horizontal grates on which all refuse falls is a vertical grate called the by-pass grate. Behind the by-pass grate is a secondary or by-pass flue. During burnings, the air comes up the by-pass flue, passes through the vertical grate and feeds heated oxygen to the top of the fire.



Arrangement for Incinerator in the Home

The fire is always at the top of the burning material. The heat liberates gases from the material underneath. These gases pass up through the flames where there is a plentiful supply of oxygen.

After repeated burnings, ashes and what is left of tin cans, bottles and so forth are dumped into the ashpit and taken out at periodic intervals. The device is of interest to fire chiefs because of the ease with which it eliminates the rubbish heap problem in the dwelling or apartment house. The illustration shows the details of the incinerator.

Newly Elected Chiefs

KARLSTAD, MINN.—C. A. Johnson.
NEW RICHLAND, MINN.—A. O. Martinson (re-elected)
PLENTYWOOD, MONT.—L. E. Hein.
KALISPELL, MONT.—J. E. Uehlinger (re-elected).
COLOME, S. D.—Carl Dietz.
WEST BRANCH, IA.—J. T. Butler (re-elected).
INGLEWOOD, CAL.—Basil Roberts.
SCOTTDALE, PA.—Walter Haines.
BOSWELL, PA.—C. E. Snoeberger.
EDGAR, NEB.—C. H. Merrill.
HATTON, N. D.—Theo. Rice.
DEVILS LAKE, N. D.—L. D. Snell (re-elected).
GETTYSBURG, PA.—E. P. Wisotzkey.
RICES LANDING, PA.—H. C. Young.
LEECHBURG, PA.—D. C. McCallum.
CAPE CHARLES, VA.—I. D. Carmean.
DECOTO, CAL.—Roland Bendle.
BIG STONE, S. D.—Max Maack.
IRONTON, MINN.—H. W. Bolder.
GRANVILLE, N. D.—M. G. Foyen.
WINGER, MINN.—Arthur Anderson.
SHELBY, MONT.—J. H. MacFarlane.
JORDANTON, TEX.—Anton Bederka.
NEW PRAGUE, MINN.—Albert J. Ambro.
BETTENDORF, IA.—Joe Evans.
LEESBURG, VA.—L. T. Frye.
FALLS CITY, NEB.—John Mosiman.
RICHARDTON, N. D.—J. R. Baggenstoss.
NEW SALEM, N. D.—R. G. Meyers.
TILLAMOOK, ORE.—Thomas Coates.
MILLINGTON, MD.—H. H. Logan.
MAUCH CHUNK, PA.—David J. Pearsall.
MILLVALE, PA.—J. H. Young.
GARDNER, MASS.—Robert M. Tappin.
CONSHOHOCKEN, PA.—George A. Shaw.
MONTESANO, WASH.—J. Healy.
BURWELL, NEB.—A. Adams (re-elected).
TABLE ROCK, NEB.—O. K. Hamilton.
GEORGE, IA.—O. A. Busker (re-elected)
CLEARBROOK, MINN.—J. R. Luper.
LANDER, WYO.—H. D. McCoun.
KILBOURN, WIS.—C. A. Brocher.
LOMIRA, WIS.—Alfred Klein.
BROOKSIDE, N. J.—Lloyd Hopper (re-elected).
OCEAN CITY, N. J.—S. B. Conver (re-elected).
POINT PLEASANT, N. J.—Harry Shoemaker.

FIRE DEPARTMENT ACTIVITIES

Madison, N. J., to Have Pumper—A pumper was ordered for Madison, N. J.

Tuckahoe, N. Y., Starts Work on Fire Station—Construction has been started on the new fire station for Tuckahoe, N. Y.

Bellingham, Wash., Has New Bungalow Station—Station No. 4, a bungalow type of fire station, has been formally accepted by Bellingham, Wash.

Martinsburg, W. Va., to Purchase Apparatus—Funds are being raised in Martinsburg, W. Va., for the purchase of fire apparatus.

Pension Bill Killed in Oregon—A bill to tax insurance premiums in Oregon was killed before it appeared on the floor of the house.

Clifton, Pa., to Have New Fire Station—A committee has been appointed in Clifton, Pa., to select a site on which to erect a new fire station.

Alhambra, Cal., Has Two-Platoon System—Alhambra, Cal., has adopted the two-platoon system and the civil service method of selection of men.

New Kensington, Pa., to Purchase Apparatus—Bids will soon be invited for a city service ladder truck and a 750-gallon pumper for New Kensington, Pa.

Westfield, Mass., to Enlarge Station—A fund of $18,000 was voted with which to construct an addition to the present fire station.

Oklahoma Has Woman Fire Marshal—Oklahoma has, so it claims, the only woman fire marshal. She is Mrs. Nola Landers who until recently was assistant state fire marshal.

Syracuse, N. Y., Has New Pumper—The new Seagrave 1,000-gallon pumper delivered to Syracuse, N. Y., successfully passed the Underwriters' test.

Wildwood Crest, N. J., to Purchase Apparatus—Wildwood Crest, N. J., has set aside a fund of $14,000 for the purchase of new fire apparatus.

New Fire Station for Syracuse, N. Y.—Construction will start soon on the new $46,000 fire station to be erected in the recently annexed territory of Syracuse, N. Y.

Philadelphia Fire Alarm Out of Service—A high tension wire falling in Philadelphia, Pa., placed the fire alarm system temporarily out of service.

Texas Considers Standardization Bill—The Texas state legislature has been considering the Stevenson bill which requires cities and towns to have uniform hose couplings and hydrant outlets.

Firemen Hurt in Lancaster, Pa.—Two members of a fire company in Lancaster, Pa., were injured when the apparatus on which they were responding to a fire was sideswiped and crashed into a telephone pole.

New Rule for Boston Firemen—Fire Commissioner Hultman of Boston plans to assign the older men in the service to outlying companies and to bring the younger men to the active companies in the high value district.

W. Jackson, Miss., to Have New Fire Station—West Jackson, Miss., has purchased ground for the erection of a new fire station. It is planned to erect a bungalow type station on this lot.

Lexington, Ky., Wants New Central Station—The commissioner of finance in Lexington, Ky., is in favor of the city selling the present central fire station and of erecting a more modern building in a different location.

Parkesburg, Pa., to Purchase Siren—Plans are being made in Parkesburg, Pa., to purchase a siren. Since one of the large mills there closed down, the city is without means for sounding a fire alarm.

Birmingham, Ala., to Have New Station—Contracts have been let for the construction of a new fire station and repair shop in Birmingham, Ala. The commission accepted the bid of $91,200.

Clementon, Township, N. J., to Purchase Pumpers—Clementon Township, N. J., passed an ordinance to purchase three Hale pumpers. A fund of $27,000 was provided for the purchase of the apparatus.

Roman Candles Used to Rout Birds—Firemen in Reading, Pa., were called out to rout a colony of starlings that had made their home in a church steeple. Roman candles were used to scare the birds from their lodgings while firemen were stationed on the roof with buckets in case a fire was started.

Ardmore, Okla., Active in Fire Prevention—Ardmore, Okla., has started on an active fire prevention program. Frank Jennings, fire chief, is to be sent to Oklahoma City to attend the fire school there. Some one will be engaged to instruct the firemen.

New Gamewell Representative in Michigan—E. A. Jaffray, who has been connected with the emergency signaling field for the past twenty-five years, has just been appointed the industrial representative for the Gamewell Company in the state of Michigan.

Kansas City, Mo., Awards Large Apparatus Order—Kansas City, Mo., has awarded a contract for twenty-one pieces of new fire apparatus to the Ahrens-Fox Fire Engine Company at their bid of $220,500. Delivery on this order will start in sixty days and the complete order will be delivered in 150 days.

Topeka, Kans., to Have New Fire Headquarters—Contracts have been let for the construction of a new fire headquarters for Topeka, Kans. According to the architect and Chief Joseph Waidelich, it will be the best equipped in the state. The building, which will cost $75,000, will have a 65-foot drill tower.

Oak Cliff Fire Relic Preserved—The old fire bell that called the volunteer firemen in Oak Cliff, Tex., will be preserved as a relic in one of the city parks. Originally it was used to call people to religious worship and then it was placed on one of the fire stations. On the bell will be engraved the names of the old volunteer firemen.

Bessemer, Ala., Men Want Pay Increase—An ordinance has been introduced to increase the salary of the firemen in Bessemer, Ala. According to this measure, the firemen will receive the same pay as the policemen of the city and the pay of the fire chief will be the same as that of the chief of the police division.

Building Code More Drastic in Madison, N. J.—The building code of Madison, N. J., has been amended so that only fireproof construction is to be permitted within the fire limits, and all structures of three stories or more within the borough limits must be of fireproof construction. Primarily, the law is aimed at builders who want to erect apartment houses.

Swiss Firemen Attracted by Lights—Firemen in a Swiss village were called out by some people who saw immense flames rising to the sky and who believed that there was a large fire near. When the men reached the scene, they found the villagers asleep. A beautiful aurora borealis had given the impression, from the distance, that a nearby village was afire.

Dormant, Pa., Organizes New Department—A new fire department has been organized in Dormant, Pa., as the result of the old members handing in their resignations. There was considerable friction between members of the old unit and the city council—the firemen felt that the council did not have confidence in them. John McHale is chief of the new department.

Watchman Hampers Fitchburg, Mass., Firemen—When the firemen in Fitchburg, Mass., responded to a fire in the city repair shops, the watchman ordered the firemen from the building saying, "This city can't afford to pay for the damage that the firemen will do." When the chief had him removed from the building, the watchman pulled out fuses and the building was in darkness.

Boston Firemen Must Not Bother Motormen—Comm. Hultman of Boston, Mass., received a letter from the local traction company requesting that firemen must live up to the rules of the company and must not talk to the motormen or ride on the front part of the car. The firemen, it is claimed, persist in talking and thus detract from the operation of the trolley cars.

Distribution in Des Moines Criticized—The arrangement of the fire stations in Des Moines, Ia., is said to be wasteful in upkeep. This statement was made by a member of the zoning commission who is making a survey of the city. He said, "Out of the fifteen fire stations in the city, seven are located in the central business section while the others are unevenly distributed." A suggested method of house distribution is being prepared.

C. A. M.

The Greatest of All Fire Apparatus Sirens

Unconditionally Guaranteed

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Are given preference by so many fire protection and water works men because they know that more than half a century of experience go into their manufacture and they embody valuable and exclusive features.

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Fire Fighting Appliances

Our LADDERS are accepted as standard throughout the United States. We build TRUSSED and SOLID SIDE types, also POMPIER or SCALING Ladders.
DOOR OPENERS, CELLAR PIPES, SIAMESE CONNECTIONS, DAY PIPES AND SHUT-OFF NOZZLES, ACID JARS, MISCELLANEOUS CHEMICAL TANK EQUIPMENT, etc.

Write us when interested.

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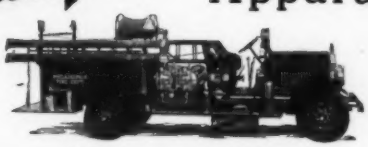
381 Fountain Street Providence, R. I.

"Pirsch" Builds Complete Line of Motor Apparatus
Let Us Submit Bids on Your New Apparatus
Catalogue No. 16 Now Ready! Send for it.

PETER PIRSCH & SONS CO.
Since 1857
Kenosha, Wisc.

Sanford Fire Apparatus



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Builders of Quality Products for 15 Years

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Motor Fire Apparatus

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

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The "Corey" Fire Hydrant of the improved Rensselaer type is the easiest to operate of any on the market.

Ask for prices and details

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RENSSELAER VALVE CO., Troy, N. Y.
Send me Hydrant Book, No. 9.

Name .....
Street ..... City .....

Have You Seen It?

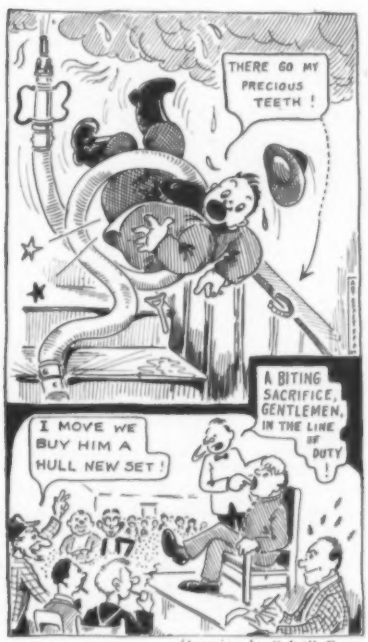
If you are not already an honest-to-gosh subscriber to this magazine, you will be interested in the coupon at the bottom of page 257.

Fire Engineering

FALSE ALARMS

APPLICATION TO DUTIES IS REWARDED

While fighting a fire, a Pennsylvania firemen became blinded by smoke and fell down a flight of stairs. While a fall down a flight of stairs is nothing to be laughed at, the most serious part of the incident, was that the firemen lost a set of false teeth which he believed to be



Drawing by "Art" Espey

firmly fixed in his mouth. But such is the stuff that volunteer firemen are made of—when duty calls, personal comforts or rewards are forgotten in the task of fighting the flames. The sacrifice of this fireman was soon adjusted. At a meeting of the firemen's association, it was voted to purchase him a new set of false teeth.

THE REQUIREMENTS

"Do you know that you would make a wonderful fireman," said she to him after a long pause of silence in the family parlor.

"How's that?"

"Well," she replied, "you never take your eyes off the hose."

"What's an example of arson?"

"Burning whiskey on a plum pudding," replied the other.

A GOOD RECORD

A meek-looking darky was brought into a suburban police station the other day and was charged with arson. He pleaded innocence. The fire chief was on hand at the hearing.

"Well," said the examining officer, "is there anyone here who can vouch for your respectability?"

The darky pointed to the chief of the fire department.

The fire chief gasped, "I can? Why, I don't even know you."

"Dat's it exactly, officer," said the accused. "I'se lived in dis place fo' mo' dan five years and de fire chief don't even know me. So you see, gents, I can't be much on what you calls arson."

PRELUDE

THE siren shrieks, and the klaxon blows—
A big red blur, and the engine goes
Like a drunken giant through the traffic jam,
Hell-bent for the flames on Amsterdam.
The pavement trembles, red sparks fly
As the hook-and-ladder comes pounding by.
For Commerce is dead, Romance holds sway—
Rome again on a holiday!
The grocer leaves his counter, the policeman leaves his beat—
Half the city's urchins racing up the street.
All the world is young again—flames are leaping higher—
Levy and Sullivan tearin' towards the fire.
And now black smoke comes pouring out,
And the rabble all eager howl and shout
As in the arena long ago
When the lions and Christians put on a show.
Up go the ladders! Up go the men!
Fire and destruction must be met again!
Up go the hose on the water towers
And the flames are drowned in their streaming showers.
This is the prelude to the tale
Of Moe Levinsky's fire sale.

—*Life.*

EVOLUTION

A two alarm fire occurred in a stable in the lower west side of New York and the men were overhauling. One of the men asked the lieutenant if he could walk back to quarters that were not far away to start the cooking for the noonday meal.

"No, better eat around here, somewhere."

The firemen continued to overhaul and one of them would occasionally pick up a bit of straw or hay and chew on the tip of it as firemen used to do in the horse age.

"There's a fellow so hungry, he's eating the hay," said the fireman to the lieutenant.

"Won't hurt him," replied the lieutenant, "he's a donkey, anyhow."

W. J. DALY.

PARSON SHUT OUT

A Pittsfield parson was awakened by the roar of a fire whistle which shattered the early Sabbath silence. Hastily slipping from bed, he rushed to a front window to see what the sky might tell him. In the meantime a gentle breeze closed his bedroom door. The spring lock snapped and the parson was left out in the cold parish house with his keys and his clothes beyond his reach. There he stayed in his abbreviated attire until the sexton found him two hours later.

A NEWS ITEM

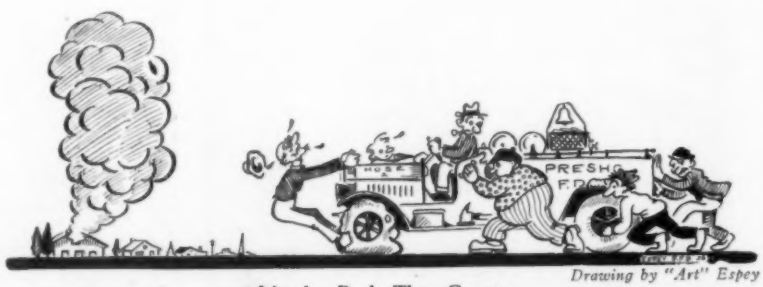
Notice: Will the person who saved $50 in currency from the cash drawer during the fire which threatened the store Tuesday night return the same at once—Moyer Hardware Store.

DIRECTIONS COUNT

It was a sleepy village, and its fire brigade was anything but up-to-date. One night a fire was announced by the violent ringing of the fire alarm bell, and the sleepy brigade arrived at the scene to find the burning building a mass of smoke. No flames were visible from the outside.

The captain made a careful survey. Then he lit his pipe and started to smoke.

"We'll do better if we leave it alone and let it burn up a bit," he said. "Then we'll be able to see what we are doing."



Drawing by "Art" Espey

It's the Push That Counts

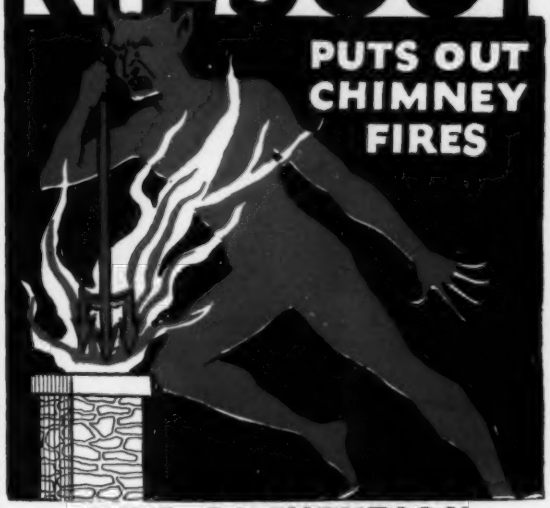
Hurray for the dauntless firemen of Presho, S. D.! When it came time to use the apparatus to extinguish a blaze in the city, it was found that there was no gasoline in the tank, that the battery was too weak to operate the ignition system and that there was one flat tire. But where each of the men put their shoulder to the wheel, countless things may be accomplished. In this instance, the apparatus was pushed several blocks to the scene of the fire.

BRAXMAR
BADGES

have been the recognized standard for fire departments for almost 50 years. Used everywhere. More than 900 designs. Send for illustrated catalog and prices.

C. G. BRAXMAR CO.
242 W 55th St., N. Y. C.

KILSOOT



FIRE PREVENTION

A better, safer and surer way to prevent and extinguish chimney fires is offered to fire chiefs and fire prevention bureaus in the use of "Kilsoot."

We repeat our offer to send liberal samples and full details regarding this remarkable chemical product—gladly furnished upon request.

KILSOOT CHEMICAL COMPANY, INC.
530 West 58th St., New York
Also makers of "Chimnee-Sweep"

MATHEWS
(Reg. U. S. Pat. Off.)
FIRE HYDRANTS
for
DOMESTIC
and
HIGH PRESSURE
Service

NOTE—

The positive waste value.

All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

An easily installed
EXTENSION SECTION
readily adapts them to new grades.

VALVES and BOXES
CAST IRON PIPE
(Sand-Cast or "Sand-Spun")
FITTINGS

R. D. WOOD & CO., Phila., Pa.

BUCKEYE WHISTLES

Do they hear *You* Coming?

You can MAKE THEM HEAR you by using the same type of signal that is being used by the Locomotive. And why not? For 75 years the great American Railroads have been using WHISTLES to attract attention to an approaching train. If more effective warning signals existed, the railroads would be using them today—for they are spending millions annually to prevent the **DESTRUCTION of LIFE and PROPERTY.** Our Engineering Department has now made it possible for Fire Apparatus to also enjoy the protection of

BUCKEYE WHISTLES

A Warning Signal that Warns
BUCKEYE IRON & BRASS WORKS ~ DAYTON, OHIO

BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.
230 West Randolph St., Chicago, Ill.

The only change made in constructing the rocker lug coupling is
1. That it must be made of the very highest grade metal composition.
2. Adding a little more of the bronze metal to each side of the pin lug so that the couplings will ride without catching.

If this is not an improvement, why?
The Bi-Lateral Fire Hose Co. is using the rocker lug coupling as standard equipment because it is better for the hose and makes a fire department more efficient.

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of every description, stronger than lead and none-corrosive. Used by departments throughout the country.

Chemical Tanks and Lally Quick Opening and Self-packing Top for Chemical Tanks

Lally Improved Fire Hose Couplings, Fire Extinguishers and Charges, Fire Hose and Fire Department Supplies in General

Send for Complete Catalog

LALLY FIRE APPLIANCE CO.

Wilmington Brass Co., Wilmington, Del.

Quick-Acting Reliable

Anderson-Hale Improved

FIRE STATION DOOR OPENERS

Over 1,300 sets of Anderson-Hale Fire Station Door Openers are in successful use. They provide simple, durable, quick-acting doors that open inward. No obstruction to sidewalk. Attractive in appearance, cannot sag, closes tight, excludes cold, gives clear opening. Opens from driver's seat or from floor. Many repeat orders from users.

Write for complete information.

The Anderson Coupling & Fire Supply Co.
Mfrs. Motor Fire Equipment and Fire Supplies
Kansas City, Kansas

HALE PUMPS

LONGER effective life, higher efficiency and greater freedom from trouble may be had by using Hale Dreadnaught Fire Pumps.

HALE FIRE PUMP CO.

Conshohocken, Pa.

MORSE

FIRE BOAT EQUIPMENT

Invincible and Callahan Nozzles

Fire Department Supplies

are in use throughout the country and giving unsurpassed service.

Every fire official should be fully acquainted with Morse equipment and have our catalog and other descriptive literature on file for ready reference whenever considering the purchase of new equipment.

You will find that it pays.

Write for Catalog

Andrew J. Morse & Son, Inc.

221 High St. Established 1837 Boston, Mass.

JOHN H. CLAY, INC.

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Established 1864

Manufacturer Fire Dept. Supplies: Automatic Door Spring Outfits and All Kinds of Hydrant Connections.

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Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

Over 5,000 Victor Gas Masks in Service

Full Line Fire Dept. Supplies and Equipment.

New 43 Edition Catalog on Request

The Woodhouse Mfg. Co., Inc

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D. A. Woodhouse, Pres. and Gen. Mgr. George J. Kuss, Vice-Pres. and Treas.

When in the Market for New Equipment

please write us and we shall be glad to have the right manufacturers provide you with complete specifications and prices for your consideration. This service won't cost a cent nor place you under any obligation whatever. We just want to cooperate both with you and with manufacturers in every possible way.

FIRE ENGINEERING
225 W. 34th St., N. Y. C.

Help Yourself! Free Service! Here's the Combination!

Fire Protection Equipment And Supplies

1 Acid Siphons
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
6 Alarms, Siren, Electric.
7 Alarm Systems, Industrial.
8 Alarm Systems, Municipal Telegraphic.
9 Alarms, Thermostatic.
10. Asbestos, Clothing.
11. Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal.
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brakes, Air.
19 Brake Linings.
20. Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Cable & Wire, Fire Alarm.
23 Caps, Firemen's.
24 Chains, Non-Skid, Fire Apparatus.
25 Chassis for Fire Apparatus.
26 Chemical Engines and Tanks.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment, Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Fire, Soda & Acid.
35 Extinguishers, Fire, Tetrachloride.
36 Extinguishers, Fire, Foam.
37 Extinguishers, Fire, Powder.
38 Fire Boat Nozzle Equipment.
39 Fire Department Supplies, General.
40 Fire Drills & Organizations.
41 Fire Exit Devices, Door Opening.
42 Fire Alarm Posts.
43 Fire Escapes, Portable.
44 Fire Escapes, Rigid.
45 First Aid Equipment.
46 Flare Lights.
47 Flashlights, Hand.
48 Foam Liquid for Extinguishers.
49 Gas Masks and Respirators.
50 Gas & Smoke Helmets.
51 Gasoline & Oil Handling Equipment.
52 Goggles, Firemen's.
53 Helmets, Metal, etc.
54 Hose Carts, Reels & Racks.

Just run down the list of equipment and jot down on the coupon below the numbers that indicate the equipment in which you are interested. Then fill out rest of the coupon and mail it to us.

We will then request the leading manufacturers of such equipment to send you descriptive literature and prices direct without any cost to you or obligation whatever.

The manufacturers we notify will gladly do this because they are advertisers and good friends of this publication and want to cooperate with our readers in every way possible in the improvement of their departments. So help yourself! Get what you want!

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Nos.....

Nos.....

Nos.....

Nos.....

Date.....

Name.....

Position.....

Street..... .....

City and State.....

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Fire Protection Equipment And Supplies

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56 Hose Fire.
57 Hose, Chemical.
58 Hose Holders.
59 Hose Jackets.
60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pump.
71 Pads, Pole Hole.
72 Paints, Fire Resisting.
73 Priming Ether, Motor.
74 Pumping Cars, Standard.
75 Pumping Cars, Foam.
76 Pumps, Fire Apparatus.
77 Pumps, Fire Service, Stationary.
78 Pumps, Portable, for Fire Protection.
79 Record Books, Fire.
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81 Reviving Apparatus, Oxygen.
82 Rubber Clothing.
83 Searchlights.
84 Shingles, Fire Retardant.
85 Shirts, Firemen's Special.
86 Sirens, Apparatus & Chiefs' Cars.
87 Sliding Poles.
88 Soda & Acid Chemicals.
89 Spark Plugs, Fire Apparatus & Motorcycles.
90 Squad and other Auxiliary Cars.
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92 Sprinkler Supervisory Service.
93 Sprinkler Systems, Automatic, Foam.
94 Sprinkler Systems, Automatic Water
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96 Steam Fire Engines.
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98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
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105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air.
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109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

For Information on Any Equipment Not Listed Above, Write on This Page or Use Separate Sheet.

Mar. 9, 1927

Saving Millions *in* Standing Timber

A FEW years ago forest fires burned or were fought ineffectually with gunny sacks, ditching, back firing, etc.

Today hundreds of Northern Pumps are saving millions of dollars annually in successfully combatting the forest fire menace.

Here again absolute dependability is required, together with highest efficiency and compactness. A Forest Ranger often packs a 40 gallon per minute self contained gasoline forest fire engine on his back for miles to the scene of the fire.

Water is taken where found in ditches, creeks, swamps and sometimes pumped through 2500 feet of hose.

Over one hundred Northern Pumps were put to work this year in the Pacific Northwest, while less than a dozen competing machines were sold in the same territory.

This marked preference for Northern Rotary Pumps is due to confidence built up through 4 years of experience with all makes.

You, too, should have confidence in Northern Pumps that you can buy through 13 manufacturers of Fire Apparatus in the U. S. and many foreign countries.

Northern Pumps are doing big things in the industrial world — performing exacting services — establishing records for dependability, durability and efficiency.

Many of the world's largest users of pumps buy Northerns regularly.

Northern Pump ads will tell you interesting things that are being done by Northern Pumps that no other Rotary fire pump has done.

This is one of a series of such ads.

NORTHERN ROTARY PUMPS
"MORE GALLONS PER HORSE POWER"

NORTHERN FIRE APPARATUS CO.
902—18th Ave. N. E.
MINNEAPOLIS, MINN.

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is for Fire Protection Officials

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Position .....

Address .....

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You Should Have Them!

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Large refrigeration plants;
Fiber and rag warehouses;
Tall office buildings;
Piano factories;
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Use of appliances.

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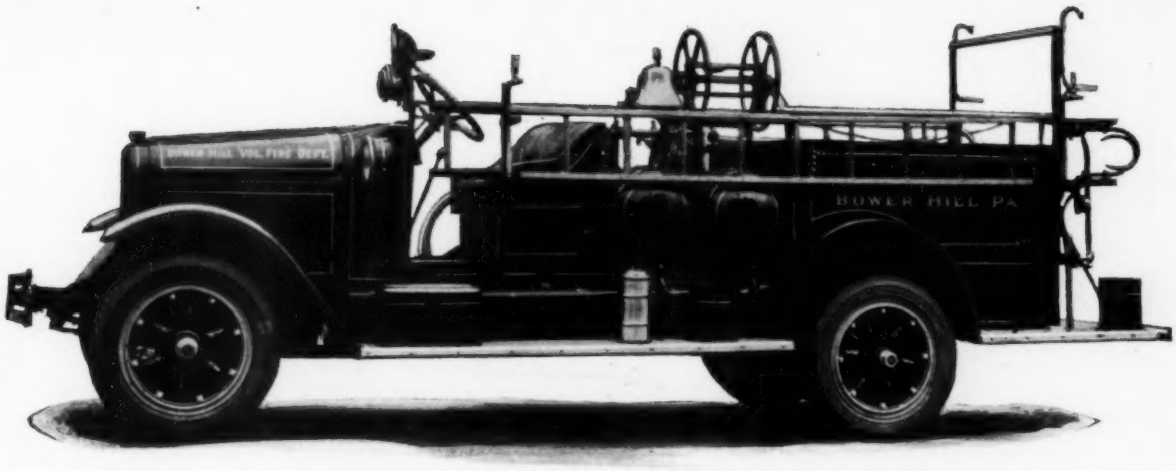

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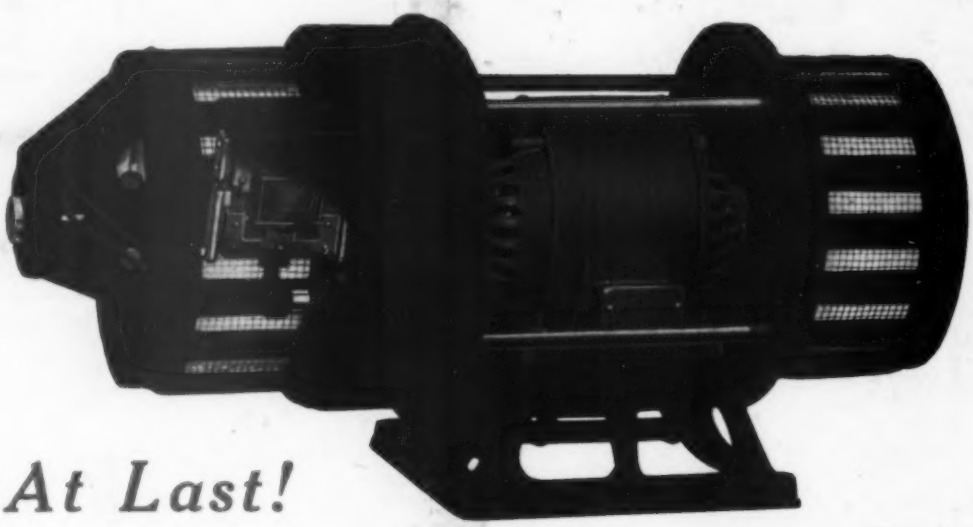

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A New Electric Fire Siren

designed exclusively

For Blowing CODE Signals

Which Your Community MUST Have if You Would Maintain Your Fire - Fighting Equipment at Maximum Efficiency

The First and Only Siren to Possess These Advantages

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